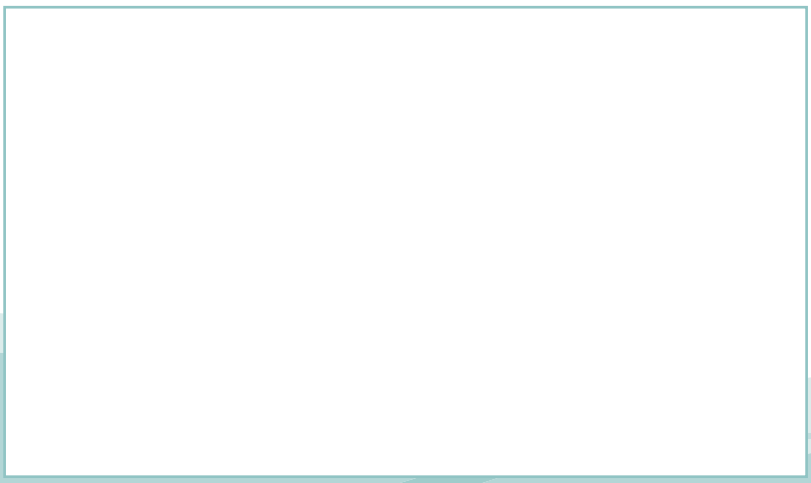
SVENSK STANDARD
SS-EN ISO 22568-2:2019

Fastställd/Approved: 2019-04-25
Utgåva/Edition: 1
Språk/Language: engelska/English
ICS: 13.340.50

SWEDISH STANDARDS INSTITUTE

Skyddsskor – Krav och testmetoder för utvärdering av skokomponenter – Del 2: Icke-metalliska tåhättor (ISO 22568-2:2019)

Foot and leg protectors – Requirements and test methods for footwear component – Part 2: Non-metallic toecaps (ISO 22568-2:2019)



Standarder får världen att fungera

SIS (Swedish Standards Institute) är en fristående ideell förening med medlemmar från både privat och offentlig sektor. Vi är en del av det europeiska och globala nätverk som utarbetar internationella standarder. Standarder är dokumenterad kunskap utvecklad av framstående aktörer inom industri, näringsliv och samhälle och befrämjar handel över gränser, bidrar till att processer och produkter blir säkrare samt effektiviserar din verksamhet.

Delta och påverka
Som medlem i SIS har du möjlighet att påverka framtida standarder inom ditt område på nationell, europeisk och global nivå. Du får samtidigt tillgång till tidig information om utvecklingen inom din bransch.

Ta del av det färdiga arbetet
Vi erbjuder våra kunder allt som rör standarder och deras tillämpning. Hos oss kan du köpa alla publikationer du behöver – allt från enskilda standarder, tekniska rapporter och standard-paket till handböcker och onlinetjänster. Genom vår webbtjänst e-nav får du tillgång till ett lättnavigerat bibliotek där alla standarder som är aktuella för ditt företag finns tillgängliga. Standarder och handböcker är källor till kunskap. Vi säljer dem.

Utveckla din kompetens och lyckas bättre i ditt arbete
Hos SIS kan du gå öppna eller företagsinterna utbildningar kring innehåll och tillämpning av standarder. Genom vår närhet till den internationella utvecklingen och ISO får du rätt kunskap i rätt tid, direkt från källan. Med vår kunskap om standarders möjligheter hjälper vi våra kunder att skapa verklig nytta och lönsamhet i sina verksamheter.

Vill du veta mer om SIS eller hur standarder kan effektivisera din verksamhet är du välkommen in på www.sis.se eller ta kontakt med oss på tel 08-555 523 00.

Standards make the world go round

SIS (Swedish Standards Institute) is an independent non-profit organisation with members from both the private and public sectors. We are part of the European and global network that draws up international standards. Standards consist of documented knowledge developed by prominent actors within the industry, business world and society. They promote cross-border trade, they help to make processes and products safer and they streamline your organisation.

Take part and have influence
As a member of SIS you will have the possibility to participate in standardization activities on national, European and global level. The membership in SIS will give you the opportunity to influence future standards and gain access to early stage information about developments within your field.

Get to know the finished work
We offer our customers everything in connection with standards and their application. You can purchase all the publications you need from us - everything from individual standards, technical reports and standard packages through to manuals and online services. Our web service e-nav gives you access to an easy-to-navigate library where all standards that are relevant to your company are available. Standards and manuals are sources of knowledge. We sell them.

Increase understanding and improve perception
With SIS you can undergo either shared or in-house training in the content and application of standards. Thanks to our proximity to international development and ISO you receive the right knowledge at the right time, direct from the source. With our knowledge about the potential of standards, we assist our customers in creating tangible benefit and profitability in their organisations.

If you want to know more about SIS, or how standards can streamline your organisation, please visit www.sis.se or contact us on phone +46 (0)8-555 523 00

Europastandarden EN ISO 22568-2:2019 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN ISO 22568-2:2019.

Denna standard ersätter SS-EN 12568:2010, utgåva 2

The European Standard EN ISO 22568-2:2019 has the status of a Swedish Standard. This document contains the official version of EN ISO 22568-2:2019.

This standard supersedes the SS-EN 12568:2010, edition 2

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS som även lämnar allmänna upplysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Skyddsskor, SIS/TK 397.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 22568-2

April 2019

ICS 13.340.50

Supersedes EN 12568:2010

English Version

Foot and leg protectors - Requirements and test methods for footwear component - Part 2: Non-metallic toecaps (ISO 22568-2:2019)

Protecteurs du pied et de la jambe - Exigences et méthodes d'essais pour les composants de chaussure - Partie 2: Embouts non métalliques (ISO 22568-2:2019)

Fuß- und Beinschutz - Anforderungen und Prüfverfahren für Schuhkomponenten - Teil 2: Nichtmetallische Zehenkappen (ISO 22568-2:2019)

This European Standard was approved by CEN on 25 February 2019.

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.

CEN members are the national standards bodies of 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN ISO 22568-2:2019: E

Contents

Page

European foreword

This document (EN ISO 22568-2:2019) has been prepared by Technical Committee ISO/TC 94 "Personal safety -- Personal protective equipment" in collaboration with 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 October 2019, and conflicting national standards shall be withdrawn at the latest by October 2019.

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

This document supersedes EN 12568:2010.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 22568-2:2019 has been approved by CEN as EN ISO 22568-2:2019 without any modification.

Introduction

ISO 20345, ISO 20346 and ISO 20347[2] are related to safety, protective and occupational footwear which define the performance and required properties of the footwear. On introducing these standards all national standards relating to safety toecaps were withdrawn leaving the manufacturers of these items with no means of demonstrating the performance of their products. This document has been prepared to allow manufacturers to demonstrate the performance level of the toecaps before being inserted into the footwear.

Non-metallic toecaps complying with the requirements of this document are suitable components of “PPE footwear”.

Foot and leg protectors — Requirements and test methods for footwear component —

Part 2:
Non-metallic toecaps

1 Scope

This document specifies requirements and test methods for non-metallic toecaps, intended to function as components of PPE footwear (e.g. as described by ISO 20345 and ISO 20346).

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 20345, *Personal protective equipment — Safety footwear*

ISO 20346, *Personal protective equipment — Protective footwear*

ISO 22568-1:2019, *Foot and leg protectors —Requirements and test methods for footwear component assessment — Part 1: Metallic toecaps*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 20345, ISO 20346 and the following apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
internal non-metallic toecap
toecap produced from material other than metal and intended to be incorporated underneath the upper of footwear intended to provide protection against mechanical impact and compression

Note 1 to entry: External toecaps were used in the past, they are not used anymore and they are not covered by the present document.

4 Requirements for non-metallic toecaps

4.1 General

This document defines two types of non-metallic toecaps (type A and type B) to cover the various types of footwear constructions.

For each of the required measurements performed in accordance with this document, a corresponding estimate of the uncertainty of measurement should be evaluated. One of the following approaches should be used:

— statistical method, e.g. that given in ISO 5725-2[1];

— mathematical method, e.g. that given in ISO/IEC Guide 98-3[3];

— uncertainty and conformity assessment as given in ISO/IEC Guide 98-4[4];

— JCGM 100:2008[5].

Table 1 — Summary of requirements and number of samples

Property	Sub clause	Number of samples
Finishing	4.2	1 sample each size right and left
Internal length	4.3.1	1 sample each size right and left
Width of flange	4.3.2	1 sample each size right and left
Impact resistance	4.4	1 sample each size right and left
Compression resistance	4.5	1 sample each size right and left
Stability against ageing and environmental influence	4.6	1 pair right and left for each treatment
NOTE 1 For details, see 4.2 to 4.6.		
NOTE 2 The provisions of 4.2, 4.3, 4.4, 4.5 and 4.6 do not exclude a non-metallic toecap design incorporating perforations.		

4.2 Finishing

Non-metallic toecaps shall be finished so as to be free from surface marks or defects and shall be free from burrs and sharp edges and defects of splitting or delaminating between material layers.

4.3 Dimensions

4.3.1 Internal length

When measured in accordance with the method described in 5.2.1, the internal length of non-metallic toecaps shall be not less than the appropriate value given in Table 2.

Table 2 — Minimum internal length of non-metallic toecaps

Non-metallic toe cap size	Minimum internal length mm
≤5	34
6	36
7	38
8	39
9	40
≥10	42
NOTE The above sizing system for toecaps is not identical to any sizing system for footwear.	

4.3.2 Width of flange

If non-metallic toecaps are formed with a flange, the inside width of the flange, *e*, shall be not greater than 15 mm using the test method given in 5.2.2.

4.4 Impact resistance

When non-metallic toecaps are tested in accordance with the method described in 5.3 at an energy level of either (100 ± 2) J (non-metallic toecaps intended for protective footwear), or (200 ± 4) J (non-metallic toecaps intended for safety footwear), the clearance under the toecap at the moment of impact shall be not less than the appropriate value given in Table 3. In addition, the non-metallic toecap shall not develop sharp edges or any cracks passing through the material (i.e. through which light can be seen) or delamination. During the assessment of the non-metallic toecap designed with perforations the criteria whether light can be seen shall not be applied to the perforations.

Table 3 — Minimum clearance under non-metallic toecaps at impact and compression

Non-metallic toecap number	Internal non-metallic toecap minimum clearance Type A mm	Internal non-metallic toecap minimum clearance Type B mm
≤5	19,5	23,5
6	20,0	24,0
7	20,5	24,5
8	21,0	25,0
9	21,5	25,5
≥10	22,0	26,0
NOTE The above sizing system for toecaps is not identical to any sizing system for footwear.		

4.5 Compression resistance

When non-metallic toecaps are tested in accordance with the method described in 5.4, the clearance under the non-metallic toecap at a compression load of either (10 ± 0,1) kN (non-metallic toecaps intended for protective footwear) or (15 ± 0,15) kN (non-metallic toecaps intended for safety footwear) shall not be less than the appropriate value given in Table 3. In addition, the non-metallic toecap shall not develop sharp edges or any cracks passing through the material (i.e. through which light can be seen) or delamination. During the assessment of the non-metallic toecap designed with perforations the criteria whether light can be seen shall not be applied to the perforations.

4.6 Stability against ageing and environmental influence

When non-metallic toecaps are subject to each single one of the treatments described in 5.5 and thereafter tested in accordance with the method described in 5.3 at an energy level of either (100 ± 2) J (toecaps intended for protective footwear) or (200 ± 4) J (toecaps intended for safety footwear), the clearance under the toecap at the moment of impact shall be not less than the appropriate value given in Table 3. In addition, the non-metallic toecap shall not develop sharp edges or any cracks passing through the material (i.e. through which light can be seen) or delamination. During the assessment of the non-metallic toecap designed with perforations the criteria whether light can be seen shall not be applied to the holes.

5 Test methods for non-metallic toecaps

5.1 General

One pair of samples of each size shall be tested. Exceptions are made for some properties, as specified in Table 1.