SLOVENSKI STANDARD
SIST EN 13061:2002

01-junij-2002

Varovalna obleka - Ščitniki goleni za nogometaše nogometnih zvez - Zahteve in preskusne metode

Protective clothing - Shin guards for association football players - Requirements and test methods

Schutzkleidung - Schienbeinschützer für Fußballspieler - Anforderungen und Prüfverfahren

Vetements de protection - Protège-tibias pour joueurs de football - Exigences et méthodes d'essai

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13.340.50	Varovanje nog in stopal	Leg and foot protection
97.220.40	Oprema za športe na prostem in vodne športe	Outdoor and water sports equipment

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EUROPEAN STANDARD

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English version

Protective clothing - Shin guards for association football players - Requirements and test methods

Vêtements de protection - Protège-tibias pour joueurs de football - Exigences et méthodes d'essai

Schutzkleidung - Schienbeinschützer für Fußballspieler - Anforderungen und Prüfverfahren

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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 Management Centre has the same status as the official versions.

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

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 162, "Protective clothing including hand and arm protection and lifejackets", the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by April 2002, and conflicting national standards shall be withdrawn at the latest by April 2002.

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).

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

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

Introduction

Association football by virtue of being a body contact sport presents a number of hazards which can cause injuries. Shin guards cannot always prevent serious injuries but are intended to significantly reduce the severity of laceration, contusion and puncture caused by impacts.

Shin guards intended for protection in association football can be used in other sports where appropriate, and where the rules of the sport permit, but the protection provided in such other sports can not be claimed to be adequate on the basis of conformance to this European Standard without supporting information concerning the sport in which the shin guards are to be used.

1 Scope

This European Standard specifies the general requirements for the ergonomics, innocuousness, sizing, coverage, performance, and cleaning of association football players' shin guards. Test methods are described and performance levels are defined. Requirements for the marking of shin guards and the information to be supplied with them are given.

2 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

2.1
contusion or bruise
injury usually caused by a blunt impact in which the skin is not broken. Underlying soft tissue is damaged by compression and by shearing forces. Fine blood vessels are damaged leading to bleeding, discoloration and swelling

2.2
laceration
irregular torn injury through the skin

2.3
puncture
wound in which a penetrating object makes a discrete hole through the skin which more or less closes after withdrawal of the object

2.4
association football
game of football in which the ball is not picked up or carried by field players, and in which the rules for tackling should limit the severity of body blows

2.5
internal ridges
raised area of the shell material which is directed towards the user's leg. A ridge is a linear feature that has a top width of less than 5 mm or an area feature with a top area of less than 25 mm^2

3 Requirements

3.1 General, including innocuousness

Shin guards for association football players shall meet a general requirement that they are safe to use and fit for their purpose, and also the following specific requirements:

Shin guards shall be designed and manufactured to provide protection when used according to the manufacturer's instructions, without endangering the user or other players. Construction materials and

incorporated substances, shall not harm those coming into contact with them. The manufacturer shall list in the Information supplied by the manufacturer the substances used for the main components of the product and shall label any product containing substances or preparations generally known to be hazardous.

NOTE Information on the identification and classification of such substances or preparations, can be found in Directive 67/548/EEC (council Directive of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances) and its amendments, and of Directive 76/769 EEC restricting the use of some substances and preparations referred to in Directive 67/548 EEC.

There shall not be hard or sharp edges, seams, buckles or other items on the surfaces of the product that can harm the user or other players during normal use.

If there are seams, buckles or ridges that can be felt with the fingers on the inside of the shin guard, they shall be tested according to 4.5.1.1 and 4.5.1.2.

If there are ridges higher than 1 mm on the outer surface of the shin guard, they shall be tested according to 4.5.1.3. The shin guard is only satisfactory, if the appropriate gauge touches the edge of the ridge at all positions tested as described in 4.5.1.3.2.

3.2 Ergonomic

Shin guards for association football players shall be designed and constructed to minimise discomfort and impediment while wearing them. All normal playing movements shall be possible. The shin guards shall be tested according to 4.5.2.

3.3 Sizing

Shin guards for association football players shall be marked with their size. The size marking shall be the range of body height of players that the shin guard is designed to fit.

3.4 Restraint

Shin guards for association football players shall be designed so that they should remain in place during normal play and during impacts. The restraint system recommended by the manufacturer or importer shall be tested according to 4.5.3. On release of the force, the displacement of the shin guard from its initial position shall be less than 15 mm or less than 15 % of the linear dimension of the test area measured in line with the force applied, if this is greater than 15 mm.

3.5 Stud impact resistance

Shin guards for association football players shall resist impacts by a metal stud 10 mm in diameter when tested according to 4.5.4 and 4.5.5. The inner surface of the shin guards tested shall not be torn or perforated. No hard material shall shatter or give rise to potentially injurious fragments. When tested according to 4.5.5, the stud shall be stopped less than 25 mm below the zero line.

3.6 Blunt impact performance

When tested according to 4.5.6, the mean peak transmitted force of the three single impacts to the same point on three shin guards shall not exceed 2,0 kN in the central or lateral test areas.

4 Testing

4.1 Innocuousness

The manufacturer's claim that the product is innocuous shall be examined.

4.2 Sampling

Sufficient shin guards shall be supplied to execute all the tests required by this Standard. At least one example of each size to be placed on the market shall be included, complete with the labels and Information supplied by the manufacturer that will be supplied with the product.

The construction of all sizes shall be checked to ensure that they are identical apart from areal dimensions, and that these are in the proportion to the sizes marked on the shin guards. If the construction of all sizes is identical at least two sizes shall be subjected to mechanical testing. If differences in construction are apparent all sizes shall be tested.

4.3 Preparation of test specimens

New, unused shin guards shall be used for testing.

If a specific test cannot be executed because integrated straps, socks or accessories interfere with the testing procedure, these straps, socks or accessories shall be cut off. However no parts of the test area shall be cut off.

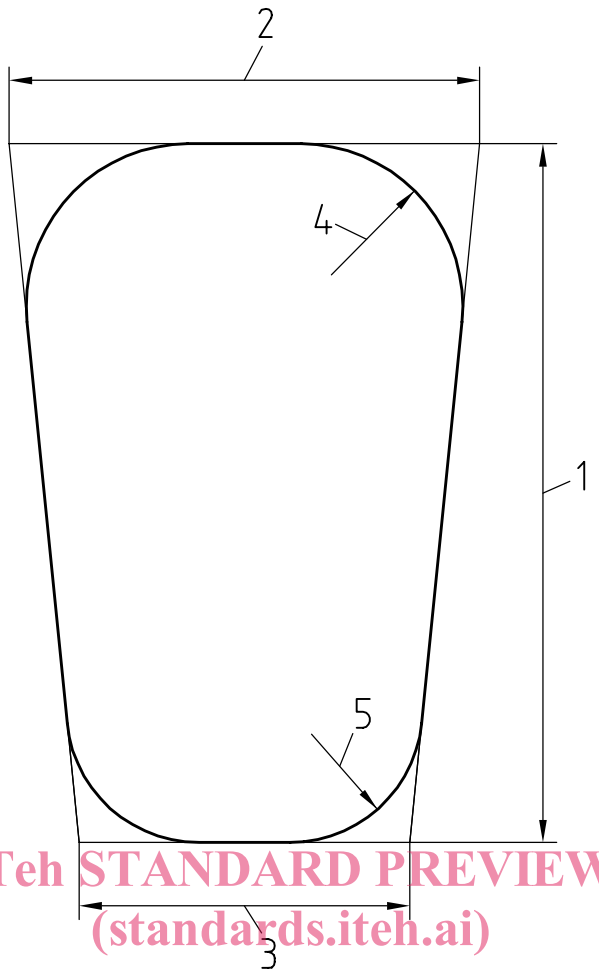
Before testing all shin guards shall be cleaned five times according to the manufacturer's instructions in the Information supplied by the manufacturer.

Test specimens shall be conditioned at a temperature of (20 ± 2) °C and at a relative humidity of (65 ± 5) % for at least 48 h before testing and the tests shall be carried out in the same environment or within ten minutes of removal from that environment.

4.4 Test area marking

The total test area is formed by a central test area and a lateral test area. The lateral test area is a border area of 15 mm constant width surrounding the central test area.

The total test area shall be marked on a shin guard in the following way: Mark the centre line and the top line of the test area on the surface of the shin guard according to the information given in the Information supplied by the manufacturer. Cut a test area template from a dimensionally stable sheet material with the calculated dimensions given by Figure 1 and Table 1 with a limit deviation of ± 1 mm for all dimensions. Position the template on the shin guard, so that he midpoint of the top edge of the template coincides with the intersection of the top and centre lines drawn on the shin guard and that the midpoint of the bottom edge of the template lines up with the centre line drawn on the shin guard. Trace around the template onto the shin guard.



Key

1 Height

2 Width at the top

3 Width at the distance 1 from the top of the protective area

4 Radius of curvature of an upper corner

5 Radius of curvature of a lower corner

Figure 1 — A plan diagram of the test area of a shin guard

Table 1 — Dimensions of the template for the total test area

	1	2	3	4	5
Dimension expressed as the percentage of the tallest wearer's height	9,5	6,4	4,5	2,2	0,9

The central test area shall be marked by using a second smaller template. This template shall be placed central on the total test area and its outline traced onto the shin guard.

4.5 Test methods

4.5.1 Innocuousness

4.5.1.1 Edges, seams and buckles

The shin guards shall be examined visually and by hand to locate any hard or sharp edges, seams or buckles that might injure the user or another player during normal use. The results shall be included in the test report.

4.5.1.2 Internal ridges

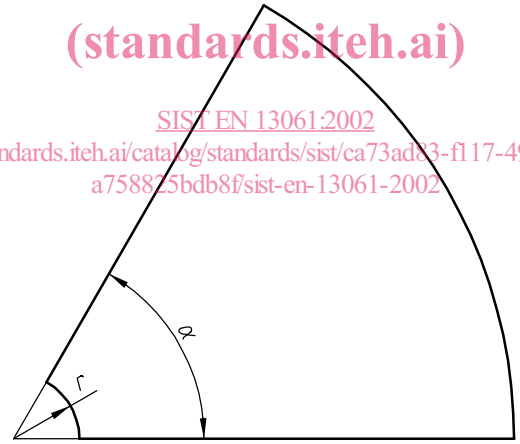
The shin guards shall be examined visually and by hand to locate any hard or sharp ridges on the inside. If such ridges can be detected inside the test area, they shall be considered to be potential weak points according to 4.5.6.2. If hard or sharp ridges can be detected at various points on the shin guard, three different positions shall be tested which are found to be the most severe on manual inspection.

If hard or sharp internal ridges can be detected outside the test area but where they could contact the tibia, they shall be tested according to the requirements of 4.5.6.2 given for the lateral test area.

4.5.1.3 External ridges

4.5.1.3.1 Apparatus

An appropriate gauge shall be used for testing the radius of curvature of external ridges. The radius gauge shall be made of metal (steel or aluminium) and shall not be more than 2 mm thick. The shape of a suitable radius gauge is shown in Figure 2. The dimensions are given in Table 2.



Key

α (60 ± 2)°

r The radius of curvature of the gauge as specified in Table 2.

Figure 2 — Radius gauge for assessing external ridges

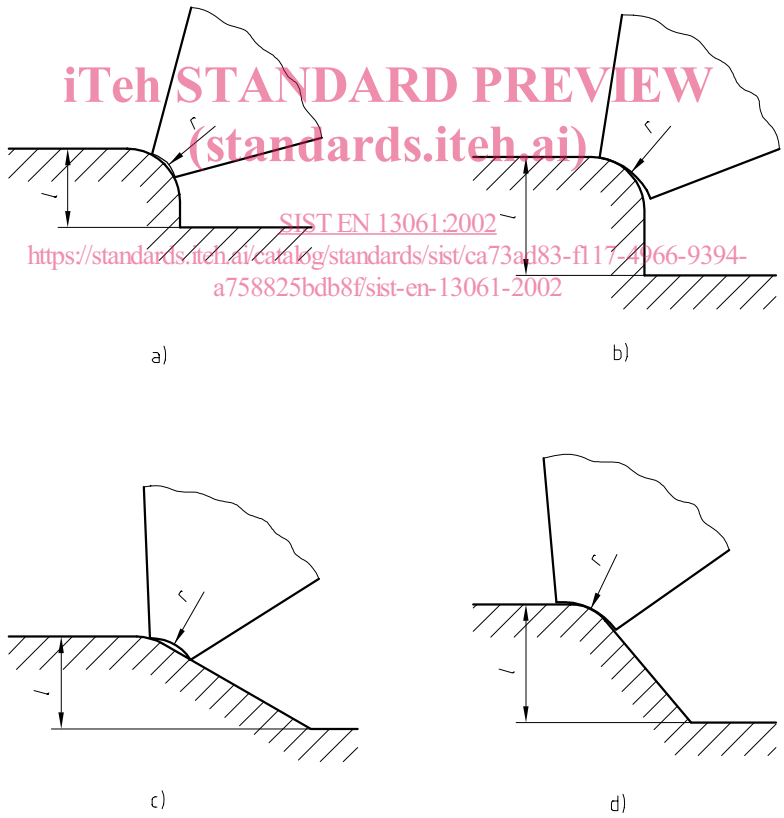
Table 2 — Dimensions of the radius gauges for testing external ridges

Height of ridges on the outer surface of the shin guard mm	Radius *r* of the testing gauge mm
< 1,4	(0,6 ± 0,1)
1,4 to 1,8	(0,8 ± 0,1)
1,8 to 2,2	(1,0 ± 0,1)
2,2 to 2,6	(1,2 ± 0,1)
2,6 to 3,4	(1,5 ± 0,15)
> 3,4	(2,0 ± 0,2)

4.5.1.3.2 Procedure

If hard or sharp ridges can be visually or manually detected on the outer surface of a shin guard, the following test shall be carried out on each of these ridges:

a) Measure the height of ridges greater than 1 mm.
b) Choose the appropriate radius gauge indicated by Table 2. Check that the radius of curvature of the ridge exceeds that of the gauge by placing the gauge against the ridge and inspecting the contact point(s) of the gauge with the shin guard. Figure 3 illustrates pass and fail conditions.



Key
a) A Pass condition
b) A Fail condition
c) A Pass condition
d) A Fail condition

l The measured height of the ridge for choosing the correct gauge from Table 2.

r The radius of curvature of the gauge.

Figure 3 — A diagram of the use of radius gauges on external ridges of a shin guard