SLOVENSKI STANDARD
SIST EN 16027:2012

01-februar-2012

Varovalna obleka - Rokavice z zaščitnim učinkom za nogometne vratarje nogometnih zvez

Protective clothing - Gloves with protective effect for association football goal keepers

Schutzkleidung - Handschuhe mit Schutzwirkung für Fußballtorwarte

Vêtements de protection - Gants à effet protecteur pour gardiens de but de football

Ta slovenski standard je istoveten z: **EN 16027:2011**

ICS:

13.340.40	Varovanje dlani in rok	Hand and arm protection
97.220.40	Oprema za športe na prostem in vodne športe	Outdoor and water sports equipment

SIST EN 16027:2012 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16027

December 2011

ICS 13.340.40

English Version

Protective clothing - Gloves with protective effect for association football goal keepers

Vêtements de protection - Gants à effet protecteur pour gardiens de but de football

Schutzkleidung - Handschuhe mit Schutzwirkung für Fußballtorwarte

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Ref. No. EN 16027:2011: E

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Foreword

This document (EN 16027:2011) 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of an identical text or by endorsement, at the latest by June 2012, and conflicting national standards shall be withdrawn at the latest by June 2012.

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Introduction

Whilst many types of gloves for goal keepers are only designed to facilitate catching the ball and provide cushioning from minor contusions, gloves can also be designed to provide additional protection to the hands and particularly the fingers. These are intended to reduce the risk of fractures, by restricting the flexing under impact of joints beyond their natural range of movement.

1 Scope

This European Standard applies to gloves for goal keepers for association football (in the following text just “gloves for goal keepers") with stabilizing and/or stiffening elements (e.g. splint, brace), which due to their construction, provide a protective effect against injuries of the hand or parts of it, such as torn capsules, broken fingers, sprained fingers and wrists.

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 420:2003+A1:2009, *Protective gloves — General requirements and test methods*

EN 10270-1 *Steel wire for mechanical springs — Part 1: Patented cold drawn unalloyed steel wire*

EN 13906-2, *Cylindrical helical springs made from round wire and bar — Calculation and design — Part 2: Extension springs*

3 Terms and definitions

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

3.1
glove for goal keepers
protective equipment worn on the hand which restricts movement of the fingers further than the normal range of the joints by use of additional safety features such as (but not restricted to) splints, braces or other stiffening elements

3.2
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

[EN 13061:2009, 2.4]

4 Requirements

4.1 General

Gloves for goal keepers shall be safe and suitable for their purpose when used in accordance with the manufacturers instructions. They shall be free of hard or sharp edges or corners, buckles or other objects on the inside and the surface of the product which may be dangerous for the user or others during normal or foreseeable use when tested in accordance with 5.3.

4.2 Innocuousness

Manufacturers of products complying with this standard should consider the health and protection of the user, the environment and the supply chain. Materials used should not, during foreseeable conditions of normal use, release or degrade to release substances generally known to be hazardous.

The manufacturer should list in the information supplied by the manufacturer the substances used for the main components of the product.

NOTE Information on the identification and classification of such substances can be found in the Directive 67/548/EEC (classification, packaging and labelling of dangerous substances) [1] as well as in the Regulation (EC) no.1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)[2].

4.3 Ergonomics

Gloves for goalkeepers shall be designed in such a way that the user can perform the typical movements required by the foreseeable conditions of use without restrictions, closure systems which ensure correct fitting and placement of the glove shall be adjustable and suitable to ensure restraint of the item whilst in use without constriction of the joint between the hand and arm.

Testing shall be in accordance with 5.3.

4.4 Stiffness

Gloves for goalkeepers shall be designed and manufactured with suitable stabilising and stiffening elements such that they support the fingers when they are stressed by a load or impact inverse to the natural flex direction of the fingers without endangering the hand, wrist or arm of the user. Testing shall be in accordance with 5.4, and the force measured shall be within the limits specified in Table 1.

4.5 Restraint system

Gloves for goalkeepers shall be easily fitted and adjusted by the user using a suitable restraint system. They shall fit firmly to the hand of the intended size, shall not release from the hand during use, and shall remain in the location they are designed to protect during all typical movements or impact. When tested in accordance with 5.5, the maximum displacement shall be less than 20 mm.

4.6 Impact strength

Gloves for goal keepers with stabilizing and stiffening elements (e.g. splint, brace) shall be resistant against mechanical impacts. Stabilizing and stiffening elements shall not break or splinter, when tested according to 5.6.

4.7 Sizing

Gloves shall be available in a range of sizes suitable for the varying hand size of the intended user. The manufacturer shall indicate the intended size for which the glove is designed.

The size of the glove with protective effect shall be defined according to EN 420:2003+A1:2009, 5.1.2, Table 3.

5 Test methods

5.1 General

Where no specific testing procedure is given, compliance with the requirements of this standard shall be established by measurement, visual and physical examination. For testing, new unused samples shall be used.

Measuring instruments unless otherwise specified shall be accurate to ± 2 % of the pass/fail level of the characteristics being measured.

For each of the required sequences of measurement performed in accordance with this standard a corresponding estimate of the uncertainty of the final result shall be determined. The uncertainty of measurement shall be expressed in the form ± X. It shall be used in determining whether a “PASS” performance has been achieved. If the final result minus X is below the pass level and there is the requirement that a certain value shall be exceeded then the sample shall be deemed to have failed.

NOTE It is anticipated that values of uncertainty of measurement will usually be between 2 % and 5 % of the measured value for force and length measurements.

5.2 Sampling and conditioning

Two pairs of unused gloves for goal keepers of each size distributed to the market shall be provided for testing.

The samples shall be conditioned for at least 24 h in an atmosphere of (20 ± 2) °C and a humidity of (65 ± 5) %. Testing shall be carried out in the conditioning environment or within 10 min of removal from that environment.

5.3 Ergonomics

At least two sizes of gloves, one sample each, shall be used. Each sample shall be put on and adjusted by a subject of appropriate dimensions of the intended user according to the information supplied by the manufacturer. Check by visual and/or tactile inspection that the glove is free of hard or sharp edges or corners, seams and buckles and that the restraint system does not constrict the user in use.

For testing the typical movements, a subject shall catch and fist a ball according to the rules of association football. The subject shall report any restrictions or severe discomfort when executing typical moves.

The size of the gloves with protective effect shall be tested according to EN 420:2003+A1:2009, 6.1.3.

5.4 Stiffness

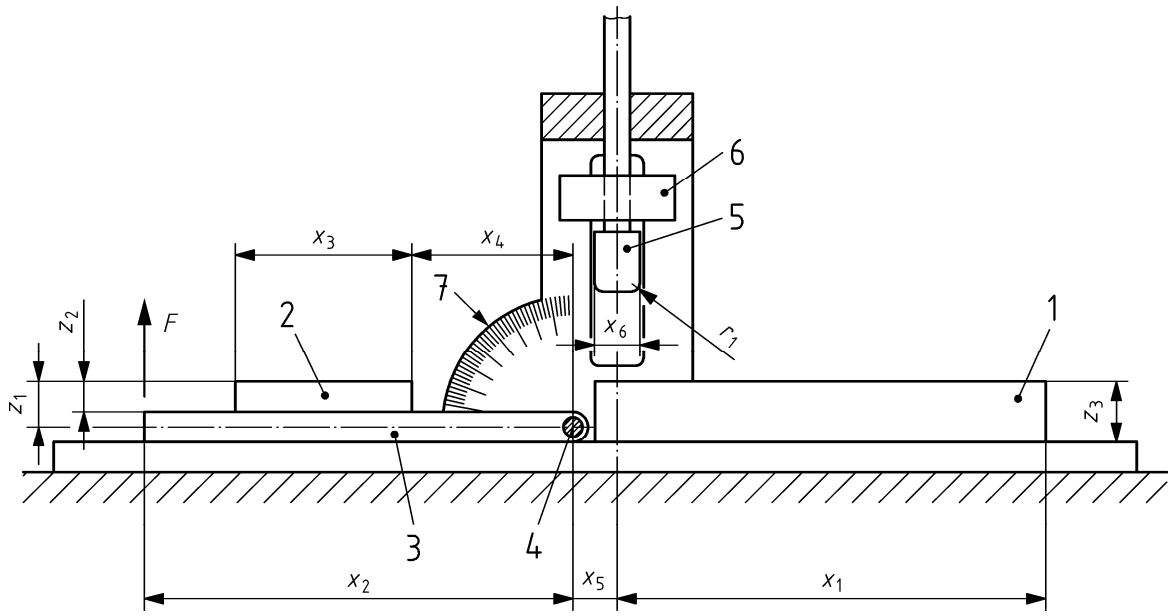
5.4.1 Apparatus

The apparatus is illustrated in Figure 1.

The apparatus comprises a palm support on which to place the palm of the glove to be tested and a finger support on which to place all fingers of the glove except the thumb. The finger support is attached to a pivot table lever. A scale enables measurement of the pivot angle of the lever with an accuracy of ± 1°. The surfaces of the palm support and of the finger support are on same level with accuracy of ± 0,2 mm. The pivot axis of the lever is (18 ± 0,2) mm below the upper surface of the finger support. The apparatus further comprises a holding bar to press down the glove to the palm support. The surface of this bar facing the glove is plane with a radius of (3 ± 0,1) mm on both long edges of the bar. The total width of the bar shall be 15 mm and the length minimum 200 mm. The long axis of the bar shall be parallel to the pivot axis with an accuracy of ± 0,5°. The horizontal distance of long axis of the bar to the pivot axis shall be (17,5 ± 0,2) mm. A guiding system shall be provided to keep the holding bar in horizontal orientation with an accuracy of ± 1°. The holding bar shall be weight loaded so that it shall be pressed down to the gloves upper surface with a force according to Table 1.

A force to pivot the lever shall be applied radial to the pivot axis with a distance of (170 ± 5) mm. The force shall be measured by a strain gauge or other appropriate instrumentation with an accuracy of ± 0,5 N.

To replace the fingers of the hand, the fingers of the gloves except the thumb shall be filled with extension springs according to EN 13906-2 with the following specifications: De=15 mm, d=1,5 mm, spring steel according to EN 10270-1, any grade, length min. 200 mm.

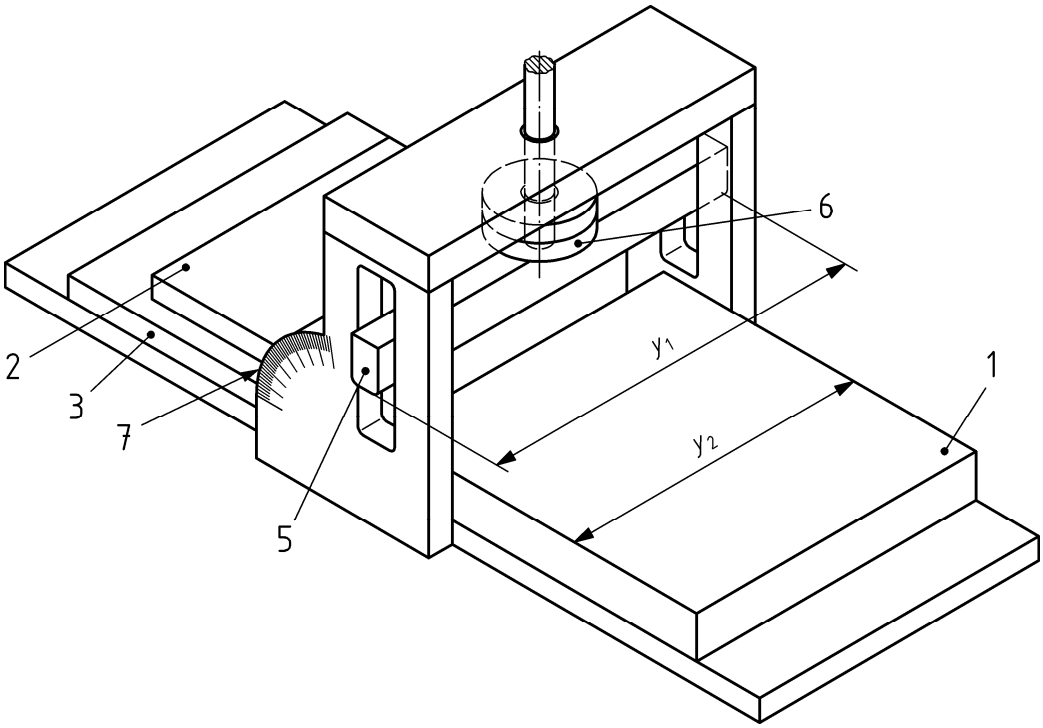


Key

1 palm support
2 finger support
3 pivotable lever
4 pivot axis
5 holding bar
6 weight
7 scale

x_1 min. 170 mm
x_2 170 mm ± 5 mm
x_3 70 mm ± 0,2 mm
x_4 see Table 1
x_5 17,5 ± 0,2 mm
x_6 15 ± 0,1 mm
z_1 18 ± 0,2 mm
z_2 12 ± 0,2 mm
r_1 3 ± 0,2 mm

Figure 1 — Apparatus for testing the stiffness of fingers of gloves



Key

1 palm support
2 finger support
3 pivotable lever
5 holding bar
6 weight
7 scale

y_1 min. 200 mm
y_2 min. 160 mm

Figure 2 — Perspective view of the apparatus for stiffness testing