



SLOVENSKI STANDARD
SIST EN 12228:2003

01-julij-2003

Podloge za športne dejavnosti – Ugotavljanje trdnosti spoja športnih podlog iz umetnih snovi

Surfaces for sports areas - Determination of joint strength of synthetic surfaces

Sportböden - Bestimmung der Nahtfestigkeit von Kunststoffbelägen

Sols sportifs - Détermination de la résistance des joints

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ICS:

97.220.10 Športni objekti Sports facilities

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EUROPEAN STANDARD

EN 12228

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ICS 97.220.10

English version

Surfaces for sports areas - Determination of joint strength of synthetic surfaces

Sols sportifs - Détermination de la résistance des joints

Sportböden - Bestimmung der Nahtfestigkeit von Kunststoffbelägen

This European Standard was approved by CEN on 5 May 2002.

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 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 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, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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Foreword

This document EN 12228:2002 has been prepared by Technical Committee CEN/TC 217 "Surfaces for sports areas", 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of an identical text or by endorsement, at the latest by March 2003, and conflicting national standards shall be withdrawn at the latest by March 2003.

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, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies two test methods for determination of joint strength of synthetic sports surfaces including synthetic turf. Method 1 describes a procedure for butt joints and overlapped adhesive joints in which a direct force is applied. Method 2 describes a procedure for reinforced butt joints in which a peel force is applied.

2 Normative reference

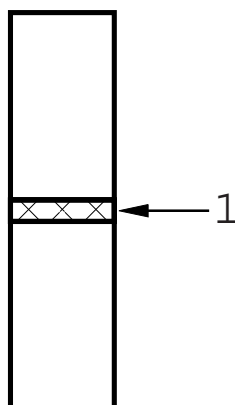
This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN ISO 7500-1, *Metallic materials - Verification of static uniaxial testing machines - Part 1: Tension/compression testing machines (ISO 7500-1:1999)*.

3 Method 1 — Direct tension method

3.1 General

This method is suitable for testing all types of synthetic sports surfaces that incorporate chemically or mechanically bonded butt joints including sewn and welded joints as the manner of joining adjacent lengths of synthetic sports surfacing (see Figure 1).

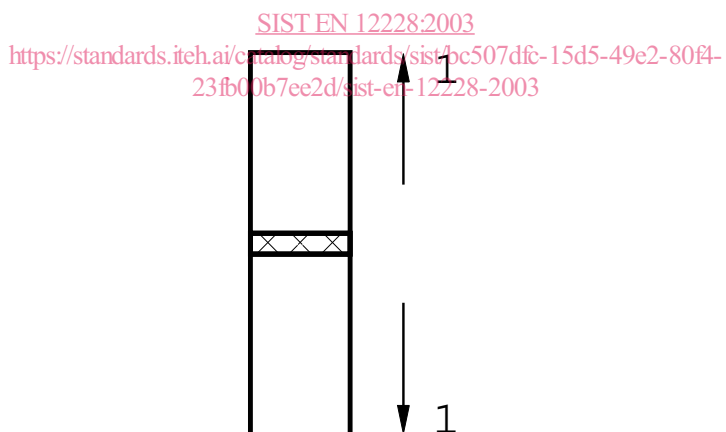
**Key**

1 Chemical/mechanical joint (including sewn seams)

Figure 1 — Butt joint

3.2 Principle

An increasing tensile force is applied perpendicular to the joint until it breaks and the maximum force applied is recorded (see Figure 2).

**Key**

1 Tensile force

Figure 2 — Principle of test — Direct tension method

3.3 Apparatus

3.3.1 Tensile testing machine, conforming to class 1 of EN ISO 7500-1:1999.

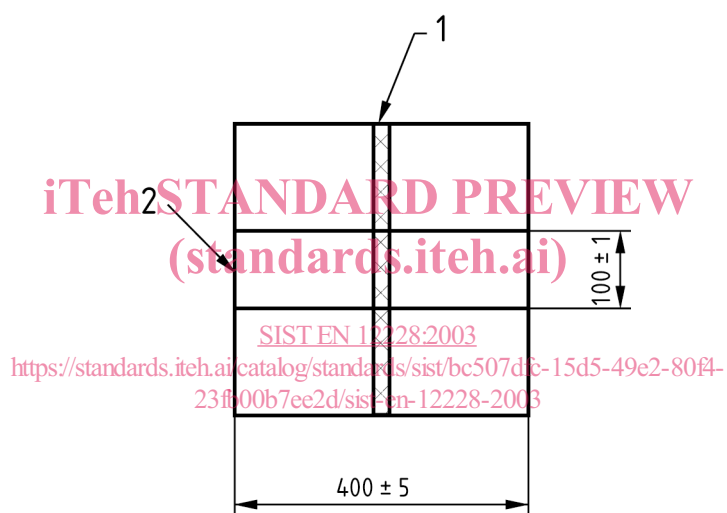
3.3.2 Jaws, which are sufficiently wide to hold the entire width of the test piece and with appropriate means to avoid slippage or damage.

3.4 Test piece

3.4.1 Stitched or welded joint

Cut from a sample of surface five test pieces of length (400 ± 5) mm and width (100 ± 1) mm with the joint centrally located (200 mm) across each test piece (see Figure 3).

Dimensions in millimetres



Key

1 Joint

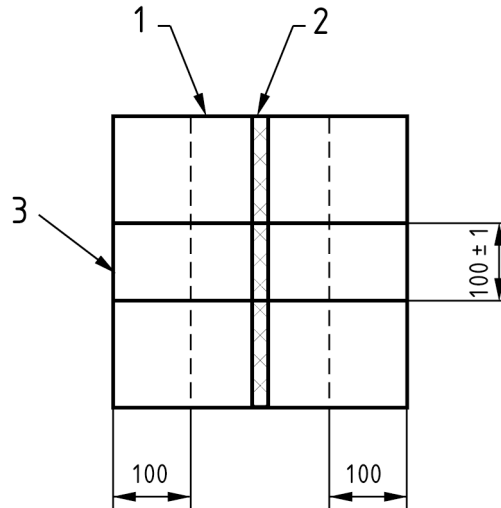
Figure 3 — Test piece layout stitched or welded joint

For any test piece containing a stitched joint, the stitching shall be tied off at the edge of the joint to prevent running.

3.4.2 Stitched or welded joints incorporating jointing tape

Cut from a sample of surface five test pieces, the length of which shall be the width of the backing material plus 100 mm each side of the backing material and width (100 ± 1) mm (see Figure 4).

Dimensions in millimetres



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Key

- 1 Backing material
- 2 Joint
- 3 Test piece

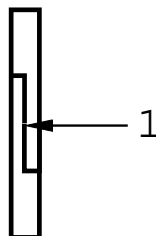
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Figure 4 — Test piece layout for stitched or welded joint incorporating jointing tape

3.4.3 Overlapped adhesive joints

Cut from a sample of surface five test pieces, the length of which shall be the width of the overlapped joint plus 100 mm each side of the joint and width (100 ± 1) mm (see Figures 5 and 6).

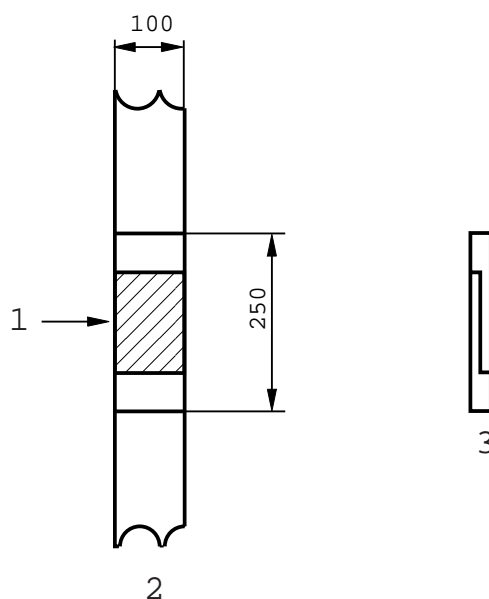


Key

- 1 Adhesive

Figure 5 — Overlapped adhesive joint

Dimensions in millimetres

**Key**

1 Overlapped adhesive joint

2 Test piece

3 Side elevation

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Figure 6 — Test piece layout — Overlapped adhesive joint

3.5 Conditioning and test temperature

Condition the test pieces for a minimum of 3 h at the test temperature, except when the material is known to be very sensitive to humidity, in which case condition for a minimum of 88 h at (50 ± 5) % relative humidity at the test temperature. Unless otherwise specified the test temperature shall be (23 ± 2) °C.

Allow wet test pieces to dry to constant mass before conditioning. Allow frozen test pieces to thaw and dry (as above) before conditioning.

3.6 Procedure

Mount the test piece in the testing machine in axial alignment with the direction of pull. Set the moving jaw in motion at a speed of 100 mm/min and, preferably by means of an automatic recording system, note the force at break or the maximum force exerted.

Repeat the test on the remaining test pieces to obtain five sets of values.

If the strength of the joint is greater than the strength of the synthetic sports surface it is joining, report the strength of the synthetic sports surface and state in the test report that the strength of the joint is greater than that of the sports surface.

If in the case of an overlapped adhesive joint the separation takes place parallel to the glued surfaces, the result shall be calculated as a shear force.