
**Podloge za športne dejavnosti – Umetne travnate podloge, namenjene
predvsem za zunanjo uporabo – Specifikacija**

Surfaces for sports areas - Synthetic turf surfaces primarily designed for outdoor
use - Specification

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Surfaces for sports areas - Synthetic turf surfaces primarily designed for outdoor use - Specification

Sportböden - Überwiegend für den Außenbereich
hergestellte Kunststoffrasenflächen - Anforderungen

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If this draft becomes a European Standard, 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.

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

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Foreword

This document (prEN 15330:2005) has been prepared by Technical Committee CEN/TC 217 “Surfaces for sports areas”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

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1 Scope

This European Standard specifies performance and durability characteristics of synthetic turf sports surfaces used primarily outdoors. Five categories of surface are covered, based on the principal sporting use of the surface, as follows:

- surfaces designed primarily for hockey;
- surfaces designed primarily for football;
- surfaces designed primarily for rugby;
- surfaces designed primarily for tennis; and
- surfaces designed for multi-sports use.

The requirements are intended to apply to surfaces used for community, educational and recreational sport. For professional and elite levels of competition many sports governing bodies have published their own specifications; the requirements of the sports governing bodies may differ from those detailed in this European Standard and facility developers are advised to ensure they select surfaces offering the correct levels of performance for the levels of competition to be played on the pitch or court.

This European Standard is based on type approval testing of products in the laboratory. Selected requirements may also be used on site to assess the suitability of installed surfaces. Guidance on the testing of installations is given in Annex A.

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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 430, *Resilient floor coverings – Determination of mass per unit area.*

EN ISO 604, *Plastics – Determination of compressive properties.*

EN 933-1, *Tests for geometrical properties of aggregates – Part 1: Determination of particle size distribution – Sieving method.*

EN 1177, *Impact absorbing playground surfacing – Safety requirements and test methods.*

EN 1969, *Surfaces for sports areas – Determination of thickness of synthetic sports surfaces.*

EN 12616, *Surfaces for sports areas – Determination of water infiltration rate.*

EN 12230, *Surfaces for sports areas – Determination of tensile properties of synthetic sports surfaces.*

EN 12235, *Surfaces for sports areas – Determination of vertical ball behaviour.*

EN 12228, *Surfaces for sports areas – Determination of joint strength of synthetic surfaces.*

EN 12229, *Surfaces for sports areas – Procedure for the preparation of synthetic turf and textile test pieces.*

EN 12234, *Surfaces for sports areas – Determination of ball roll behaviour.*

EN 13036-4:2003, *Road and airfield surface characteristics – Test methods – Part 4: Method for measurement of slip/skid resistance of a surface – The pendulum test.*

EN 13036-7, *Road and airfield surface characteristics – Test methods – Part 7: Irregularity measurement of pavement courses – The straightedge test.*

EN 13041, *Soil improvers and growing media – Determination of physical properties – Dry bulk density, air volume, water volume, shrinkage value and total pore space.*

EN 13672, *Surfaces for sports areas – Determination of resistance to abrasion of non-sand-filled synthetic turf.*

EN 13744, *Surfaces for sports areas – Procedure for accelerated ageing by immersion in hot water.*

EN 13864, *Surfaces for sports areas - Determination of tensile strength of synthetic yarns.*

EN 13865, *Surfaces for sports areas – Determination of angled ball behaviour.*

EN ISO 13934-1, *Textiles – Tensile properties of fabrics – Part 1: Determination of maximum force and elongation at maximum force using the strip method.*

prEN 14808, *Surfaces for sports areas – Determination of shock absorption.*

prEN 14809, *Surfaces for sports areas – Determination of vertical deformation.*

prEN 14836, *Synthetic surfaces for outdoor sports areas – Methods of test – Artificial weathering.*

prEN 14837, *Surfaces for sports areas – Determination of slip resistance.*

prEN 14955, *Surfaces for sports areas – Determination of composition and particle shape of unbound mineral surfaces for outdoor sports areas.*

prEN 15306, *Surfaces for outdoor sports areas — Determination of resistance to wear of synthetic turf.*

prEN 15301, *Surfaces for sports areas - Determination of rotational resistance of sports surfaces.*

EN 20105-A02, *Textiles – Tests for colour fastness – Part A02: Grey scale for assessing change in colour.*

ISO 48, *Rubber, vulcanized or thermoplastic – Determination of hardness (hardness between 10 IRHD and 100 IRHD).*

ISO 1763, *Carpets – Determination of number of tufts and/or loops per unit length and per unit area.*

ISO 8543, *Textile floor coverings – Methods for determination of mass.*

ISO 2549, *Textile floor coverings – Hand-knotted carpets – Determination of tuft leg length above the woven ground.*

ISO 4919, *Textile floor coverings – Determination of tuft withdrawal force.*

BS 903-A8, *Physical testing of rubber – Part A8: Method for determination of rebound resilience.*

3 Terms and definitions

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

3.1

synthetic turf surface

sports surface comprising a carpet of tufted, knitted or woven construction whose pile is designed to replicate the appearance of natural grass (not necessarily in colour)

3.2

non-filled synthetic turf

synthetic turf surface that does not contain any form of unbound particulate fill within the pile of the carpet

3.3

filled synthetic turf

synthetic turf surface whose pile is either totally filled or partly filled with an unbound particulate material (typically sand, rubber or sand and rubber mixes)

3.4

long pile synthetic turf

synthetic turf surface with a pile height typically longer than 40mm

NOTE The surface may be filled (typically with rubber or sand and rubber mixes), partly filled or non-filled.

3.5

surface for multi-sports

synthetic turf surface designed to be used for more than one sport

NOTE For further information see Annex B.

4 General

4.1 Resistance to artificial weathering

4.1.1 Colour fastness

When tested in accordance with EN 20105-AO2, following artificial weathering in accordance with prEN 14836, the change in colour of the weathered synthetic turf compared to an un-aged test specimen of the synthetic turf shall be greater than Grey Scale 4.

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4.1.2 Tensile strength

When tested in accordance with EN 13864, following artificial weathering in accordance with prEN 14836, the tensile strength of the pile yarn(s) used to form the synthetic turf shall be within 50 % of the tensile strength of the un-aged yarn.

4.2 Water permeability

When tested in accordance with EN 12616, the water permeability of surfaces designed to be permeable shall be equal to or greater than 150 mm/h.

4.3 Joint strength

4.3.1 Stitched joints

When tested in accordance with Method 1 in EN 12228:2002, following immersion in hot water in accordance with EN 13744, the strength of stitched joints shall be equal to or greater than 1 000 N/100.

4.3.2 Bonded joints

When tested in accordance with Method 2 in EN 12228:2002, following immersion in hot water in accordance with EN 13744, the strength of bonded joints shall be equal to or greater than 25 N/100 mm except that, for surfaces used for rugby, the minimum joint strength shall be 40 N/100 mm.

5 Surfaces designed primarily for hockey

5.1 General

Synthetic turf surfaces designed to be used primarily for hockey shall conform to the requirements given in Clause 4 and those in 5.2 to 5.7.

Test pieces shall be prepared in accordance with EN 12229 and the instructions of the manufacturer prior to test.

Wet test pieces shall be prepared in accordance with the procedure given in Annex C.

5.2 Vertical ball rebound

NOTE See also Annex D.

When tested in accordance with EN 12235 using a hockey ball under both dry and wet conditions, the vertical ball rebound shall be less than 70 %.

5.3 Ball roll

When tested in accordance with EN 12234 using a hockey ball under both dry and wet conditions, the ball roll shall be between 5,0 m and 15,0 m.

5.4 Shock absorption

When tested in accordance with prEN 14809 under both dry and wet conditions, the shock absorption shall be between 30 % and 65 %.

5.5 Vertical deformation

When tested in accordance with prEN 14808 under both dry and wet conditions, the vertical deformation shall be between 3 mm and 10 mm.

5.6 Surface friction

When tested in accordance with EN 14837 using the multi-studded rubber profile (clause 5.2.2 of EN 14837:200X) under both dry and wet conditions, the surface friction shall be between 0,6 and 1,2.

5.7 Abrasion resistance of non-filled surfaces

When tested in accordance with EN 13672, the percentage mass loss after 2 000 cycles shall be equal to or less than 2 %.

6 Surfaces designed primarily for football

6.1 General

Synthetic turf surfaces designed to be used primarily for football shall conform to the requirements given in Clause 4 and in 6.2 to 6.8.

Test pieces shall be prepared in accordance with EN 12229 and the instructions of the manufacturer prior to test.

Wet test pieces shall be prepared in accordance with the procedure given in Annex C.

6.2 Vertical ball rebound

NOTE See also Annex D.

When tested in accordance with EN 12235 using a football under both dry and wet conditions, the vertical ball rebound shall be between 45 % and 75 %.

6.3 Ball roll

When tested in accordance with EN 12234 using a football under both dry and wet conditions, the ball roll shall be between 5,0 m and 12,0 m.

6.4 Shock absorption

When tested in accordance with prEN 14809 under both dry and wet conditions, the shock absorption shall be between 55 % and 70 %.

6.5 Vertical deformation

When tested in accordance with prEN 14808 under both dry and wet conditions, the vertical deformation shall be between 4 mm and 10 mm.

6.6 Surface friction

When tested in accordance with EN 14837 using the studded shoe (clause 5.2.3 of EN 14837:200X) under both dry and wet conditions, the surface friction shall be between 0,6 and 1,0.

6.7 Rotational resistance

When tested in accordance with prEN 15301 using a studded test foot under both dry and wet conditions, the rotational resistance shall be between 30 Nm and 50 Nm.

6.8 Resistance to simulated use (long pile surfaces)

Following simulated use conditioning in accordance with prEN 15306, the surface shall conform to the requirements of clauses 6.2, 6.4 and 6.7.

7 Surfaces designed primarily for rugby

7.1 General

Synthetic turf surfaces designed to be used primarily for rugby shall conform to the requirements given in Clause 4 and those in 7.2 to 7.9.

Test pieces shall be prepared in accordance with EN 12229 and the instructions of the manufacturer prior to test.

Wet test pieces shall be prepared in accordance with the procedure given in Annex C.

7.2 Vertical ball rebound

NOTE See also Annex D.

When tested in accordance with EN 12235 using a football under both dry and wet conditions, the vertical ball rebound shall be between 45 % and 75 %.

7.3 Critical fall height

When tested in accordance with EN 1177 as a loose particulate material under both dry and wet conditions, the critical fall height of the surface shall be equal to or greater than 1,0 m.

7.4 Shock absorption

When tested in accordance with prEN 14809 under both dry and wet conditions, the shock absorption shall be between 60 % and 75 %.

7.5 Vertical deformation

When tested in accordance with prEN 14808 under both dry and wet conditions, the vertical deformation shall be between 4 mm and 10 mm.

7.6 Surface friction

When tested in accordance with EN 14837 using the studded shoe (clause 5.2.3 of EN 14837:200X) under both dry and wet conditions, the surface friction shall be between 0,6 and 1,0.

7.7 Rotational resistance

When tested in accordance with prEN 15306 using a studded test foot under both dry and wet conditions, the rotational resistance shall be between 30 Nm and 50 Nm.

7.8 Resistance to simulated use (long pile surfaces)

Following simulated use conditioning in accordance with prEN 15301, the surface shall conform to the requirements of 7.2, 7.4 and 7.7.

7.9 Tensile properties of carpet

When tested in accordance with EN ISO 13934-1, the maximum force shall be greater than 25 N/mm.

8 Surfaces designed primarily for tennis

8.1 General

Synthetic turf surfaces designed to be used primarily for tennis shall conform to the requirements given in Clause 4 and those in 8.2 to 8.7.

Test pieces shall be prepared in accordance with EN 12229 and the instructions of the manufacturer prior to test.

Wet test pieces shall be prepared in accordance with the procedure given in Annex C.

8.2 Vertical ball rebound

NOTE See also Annex D.