SLOVENSKI STANDARD
SIST EN 12231:2003

01-julij-2003

Podloge za športne dejavnosti – Preskusne metode – Ugotavljanje stopnje prekritosti tal z naravno oblogo

Surfaces for sports areas - Method of test - Determination of ground cover of natural turf

Sportböden - Prüfverfahren - Bestimmung der Bodendeckung bei Naturrasen

Sols sportifs - Méthodes d'essai - Détermination de la couverture végétale d'un gazon naturel

Ta slovenski standard je istoveten z: EN 12231:2003

ICS:

97.220.10	Športni objekti	Sports facilities

SIST EN 12231:2003 **en**

EUROPEAN STANDARD

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English version

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Sportböden - Prüfverfahren - Bestimmung der Bodendeckung bei Naturrasen

This European Standard was approved by CEN on 9 January 2003.

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

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Ref. No. EN 12231:2003 E

Contents

Foreword

This document (EN 12231:2003) 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of an identical text or by endorsement, at the latest by October 2003, and conflicting national standards shall be withdrawn at the latest by October 2003.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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies three methods for the determination of ground cover of natural turf sports surfaces.

2 Normative references

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 12233, *Surfaces for sports areas — Determination of sward height of natural turf*.

3 Terms and definitions

For the purposes of this European Standard, the following term and definition apply.

3.1
ground cover
proportion of ground occupied by the perpendicular projection of live grass material above it

4 Principle

Three methods of test are given. Method A is a visual, subjective assessment of ground cover using no measuring device. Method B uses a sampling grid to give a more systematic assessment of ground cover. Method C uses a point quadrate for when objective data are required or where a detailed assessment of species composition is needed.

In all three methods, an observer assesses the proportion of ground cover, including:

a) live grass, which includes healthy (green) and senescent (yellow) leaf tissue, together with the living stem material, which can be a variety of colours depending on the grass species;

b) weeds;

c) moss;

d) dead matter and bare ground.

The procedures can be used to measure the live grass ground cover and/or ground cover for individual plant species.

5 Sward height

Ensure that the sward height, measured in accordance with EN 12233, is within the range appropriate for the given sport.

NOTE The amount of cover that is recorded is dependent on the height of grass.

If the sward height is greater than the value appropriate for the given sport, mow the turf before assessment. On longer turf and if the grass blades are lying in a procumbent position because of mowing or rolling, brush the test area to achieve a more usual upright position for the grass blades.

If the sward height is less than the value appropriate for the given sport, do not proceed with the determination of ground cover.

6 Method A: Visual assessment of ground cover

6.1 Procedure

With the observer standing upright directly adjacent to the test area, estimate by eye the proportion of sports surface occupied by living plant tissue, dead matter and bare ground and, if required, the proportion covered by particular plant species. Record only living plant tissue as ground cover. Record dead matter and bare ground separately, if required. Disregard overlap of living plant tissue, i.e. do not multiple count.

NOTE An area quadrate (similar to that described in Method B, but not necessarily with as many subdivisions), may be used to define the sampling area.

Unless otherwise specified, assess at least five randomly chosen test areas on sports surfaces of less than 100 m^2, assess five to ten test areas, as appropriate, on sports surfaces of 100 m^2 to 1 000 m^2 and assess ten to fifteen test areas on sports surfaces of 1 000 m^2 to 5 000 m^2. Subdivide larger sports surfaces into two or more sections and test each section as above.

6.2 Expression of results

Express the results as the estimated percentages of live grass tissue and, if required, give the estimated ground cover for individual plant species.

7 Method B: Assessment of ground cover by frame quadrate

7.1 Apparatus

7.1.1 Frame, between 0,75 m x 0,75 m and 1,0 m x 1,0 m internal dimensions, divided into 100 smaller squares (each subdivision representing 1 % of the total area) using string, cord or thin wire, as shown in Figure 1.

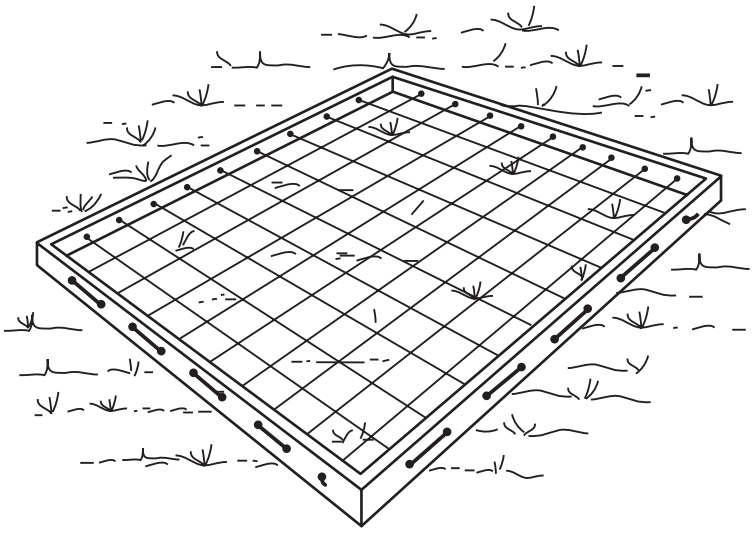


Figure 1 — Frame for estimating ground cover

7.2 Procedure

7.2.1 General

Depending on whether the cover components to be counted are smaller or larger than the frame subdivisions, refer to 7.2.2 or 7.2.3. With the observer standing upright, directly adjacent to the test area, estimate by eye the proportion of sports surface occupied by living plant tissue, dead matter and bare ground. Estimate the percentage of small weed plants or scattered spots of bare ground by the method described in 7.2.2. Assess the general distribution of plant cover as compared with extensive bare areas or the areas occupied by large weeds, moss patches, etc. as described in 7.2.3.

7.2.2 Cover components less than subdivision size

Estimate how many of the component being assessed would be required to fill a subdivision (1 % of the frame), then count the number of that component in the whole area being examined (making due allowance for any overlap that occurs) and from that, calculate the total percentage within the frame.

7.2.3 Cover components of subdivision size or larger

Count how many subdivisions in the frame are wholly filled or more than half filled by the component being assessed. All subdivisions less than half filled are ignored as 'empty'. The number of 'full' subdivisions is recorded as the percentage value.

NOTE With 100 subdivisions the 'full' and 'empty' subdivisions are assumed to balance out with adequate accuracy.

7.2.4 Number of frame placings

Unless otherwise specified, make at least five random placings of the frame on sports surfaces of less than 100 m^2, make five to ten placings, as appropriate, on sports surfaces of 100 m^2 to 1 000 m^2 and make 10 to 15 placings on sports surfaces of 1 000 m^2 to 5 000 m^2. Subdivide larger sports surfaces into two or more sections and test each section as above.

7.3 Expression of results

Express the results as the estimated percentages of live grass tissue and, if required, give the estimated ground cover for individual plant species.

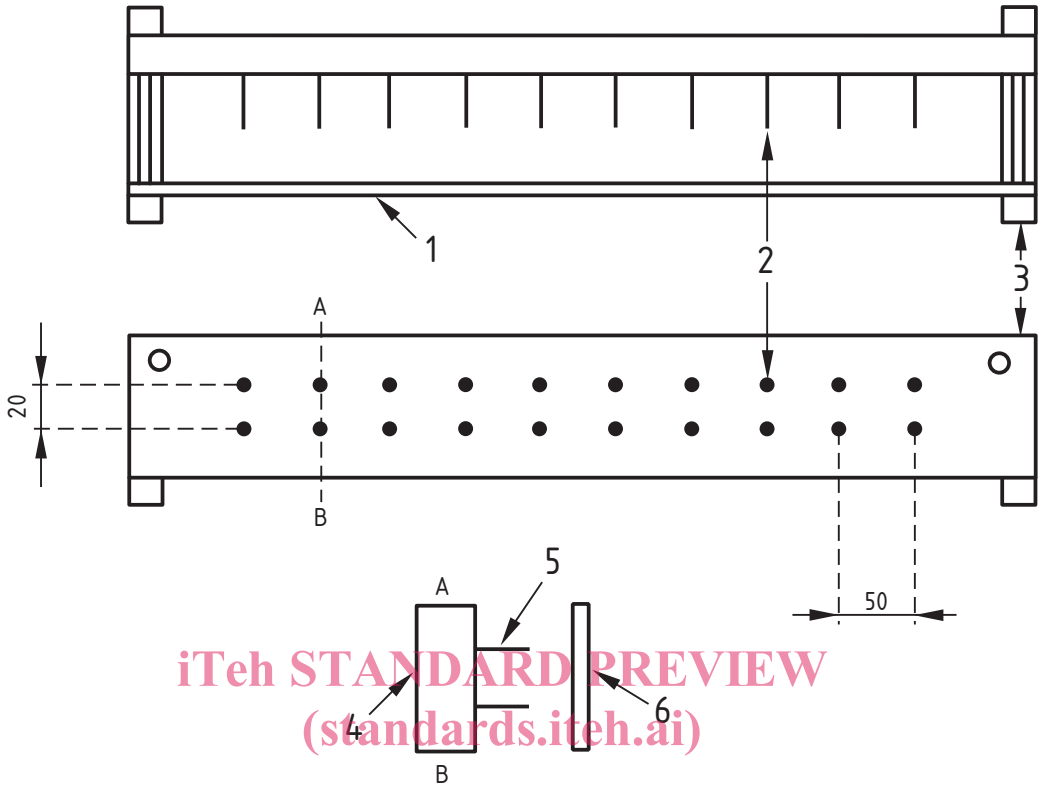
8 Method C: Assessment of ground cover by point quadrate

8.1 Apparatus

8.1.1 Optical point quadrate, as shown in Figure 2. The apparatus consists of a horizontal frame with two rows each of 10 steel pins, fixed 50 mm apart within rows and 20 mm between rows.

Not to scale

Dimensions are in millimetres.



Key

1 Perspex guard
2 Pins in pairs
3 Frame
4 Frame
5 Pin
6 Perspex guard

Figure 2 — Optical point quadrate for ground cover measurement

8.2 Procedure

Lay the frame on the turf and ensure that the bottom row of pins is at least 10 mm above the uppermost grass blades, using supports if necessary to raise the frame. Align by eye the tips of each pair of pins to identify the point to be sampled. At each point record what is directly beneath the tips, i.e. species of grass, weed, dead matter or bare ground. Continue so that all ten points are examined.

Unless otherwise specified, record information from 30 randomly placed frames on sports surfaces of less than 100 m^2, 30 to 70 frames, as appropriate, on sports surfaces of 100 m^2 to 1 000 m^2 and 70 to 100 frames on sports surfaces of 1 000 m^2 to 5 000 m^2. Subdivide larger sports surfaces into two or more sections and test each section as above.

8.3 Expression of results

Express the results as the measured percentages of live grass tissue. The individual percentage of each grass species (live material only), weed, moss, dead matter and bare ground should also be given.