



SLOVENSKI STANDARD

SIST EN 17324:2020

01-julij-2020

Podloge za športne dejavnosti - Preskusna metoda za ugotavljanje odpornosti proti dinamični utrujenosti oblog za blaženje udarcev in športnih podlog

Surfaces for sports areas - Test method for the determination of the resistance to dynamic fatigue of shock pads and sports surfaces

Sportböden - Prüfverfahren zur Bestimmung der Widerstandsfähigkeit gegen dynamische Ermüdung von elastifizierenden Schichten und Sportflächen

Sols sportifs - Méthode d'essai visant à déterminer la résistance à la fatigue dynamique des couches de souplesse et des sols sportifs

<https://standards.iteh.ai/catalog/standards/sist/1617d704-c2cb-426d-ab87-3e2859b03fe3/sist-en-17324-2020>

Ta slovenski standard je istoveten z: EN 17324:2020

ICS:

97.220.10 Športni objekti Sports facilities

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EUROPEAN STANDARD

EN 17324

NORME EUROPÉENNE

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English Version

Surfaces for sports areas - Test method for the determination of the resistance to dynamic fatigue of shock pads and sports surfaces

Sols sportifs - Méthode d'essai visant à déterminer la résistance à la fatigue dynamique des couches de souplesse et des sols sportifs

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This European Standard was approved by CEN on 2 March 2020.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 17324:2020) has been prepared by Technical Committee CEN/TC 217 “Surfaces for sports areas”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by November 2020, and conflicting national standards shall be withdrawn at the latest by November 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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EN 17324:2020 (E)**1 Scope**

This document specifies a method of test for the determination of resistance to dynamic fatigue of shockpads (including elastic layers) used in synthetic turf surfacing systems. It can also be used on other types and complete forms of sports surfacing systems.

The test is undertaken on test specimens in the laboratory.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1969, *Surfaces for sports areas — Determination of thickness of synthetic sports surfaces*

EN ISO 9863-1, *Geosynthetics — Determination of thickness at specified pressures — Part 1: Single layers (ISO 9863-1)*

EN ISO 3385, *Flexible cellular polymeric materials — Determination of fatigue by constant-load pounding (ISO 3385)*

CEN/TS 16717, *Surface for sports areas — Method of test for the determination of shock absorption, vertical deformation and energy restitution using the advanced artificial athlete*

3 Terms and definitions (standards.iteh.ai)

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp/ui>

4 Principle

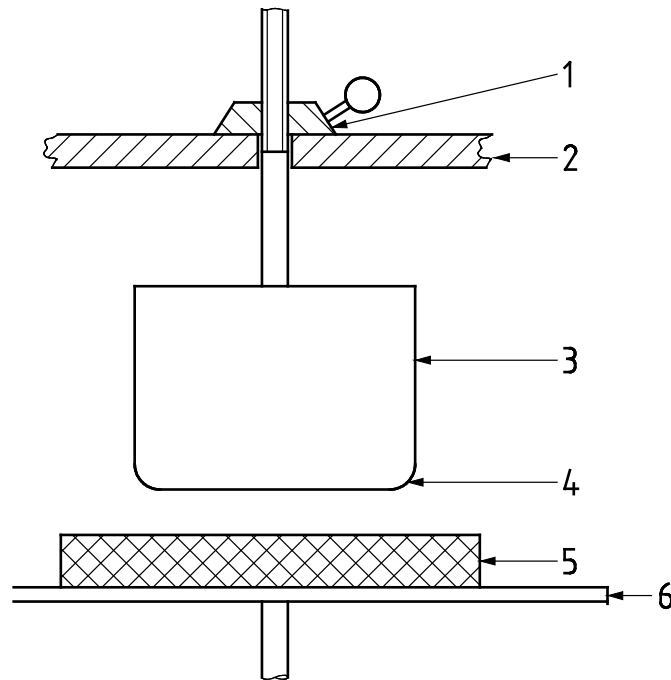
The shockpad or elastic layer is subjected to repeated impacts and any changes in the performance of structure of the shockpad or elastic layer is measured.

5 Apparatus

Dynamic fatigue repeated impact as described in EN ISO 3385, but modified as follows:

- Indenter diameter: 100 mm ± 5 mm
- Indenter radius: 8 mm ± 2 mm
- Maximum impact load: 750 N ± 50 N
- Impact frequency: 10 cycles/min ± 1 cycles/min
- Duration of test: 10 000 cycles ± 100 cycles or as stated in the product specification

The principles of the test are illustrated in Figure 1.

**Key**

- 1 adjustable stop
- 2 indenter support mounting
- 3 indenter
- 4 indenter radius
- 5 test piece
- 6 platen

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Figure 1 — Schematic view of test apparatus

6 Test specimens

A sample measuring at least 375 mm x 375 mm.

7 Conditioning and test temperature

Condition the test specimen at a temperature of (23 ± 2) °C prior to starting the test. Undertake the test at a temperature of (23 ± 2) °C.

8 Procedure

8.1 Condition the test specimen, ensuring it remains in a flat condition, for a minimum of 3 h.

8.2 Determine the shock absorption of the test specimen in accordance with CEN/TS 16717, on a rigid concrete test floor.

8.3 Determine the thickness of the test specimen.

For bound rubber crumb shockpads (in situ rubber shockpads and E-layers) the thickness shall be measured in accordance with EN 1969.

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For pre-fabricated foam and geo-felt shockpads, the thickness shall be measured in accordance with EN ISO 9863-1.

8.4 Place the test specimen on the dynamic fatigue test rig so the indenter is located in the centre of the test specimen. Adjust the indenter position to ensure the specified impact load is applied to the test specimen.

8.5 Start the dynamic fatigue test rig and allow the test specimen to be impacted for the number of cycles specified in the product specification. Where this is not specified undertake 10 000 cycles \pm 100 cycles.

NOTE As some forms of shockpad will compress because of the repeated impacts it may be necessary to readjust the indenter position to ensure the specified impact load is retained throughout the test.

8.6 At the completion of the test, remove the test specimen and ensure it remains in a flat condition during the relaxation period, which shall be equal to two minutes per compression cycle \pm 30 min (e.g. 20 000 min \pm 30 min for 10 000 cycles).

8.7 After the conditioning period, reassess the shock absorption and thickness of the test specimen ensuring both measurements are made in the area impacted during the dynamic fatigue loading.

8.8 Assess the test specimen for any signs of cracking, delamination or break-up.

8.9 Repeat the procedure on two further test specimens (three in total).

9 Expression of results (standards.iteh.ai)

9.1 Calculate the mean values of shock absorption for the three test specimens before and after dynamic fatigue conditioning. Calculate the mean loss in shock absorption as a result of the dynamic fatigue conditioning.

9.2 Calculate the mean values of thickness for the three test specimens before and after dynamic fatigue conditioning. Calculate the mean loss in thickness and the percentage change in thickness, as a result of the dynamic fatigue conditioning.

10 Test report

The test report shall include the following:

- a) the number and date of this document, i.e. EN 17324:2020;
- b) complete identification of the shockpad tested, including type, manufacturer's reference and previous history;
- c) the mean values of shock absorption before and after dynamic fatigue conditioning and any loss in shock absorption (to one whole unit);
- d) the mean values of thickness before and after dynamic fatigue conditioning and any change in thickness (to the nearest 0,5 mm) and percentage loss;
- e) a description of any damage which occurred;
- f) photographs showing any signs of cracking, delamination or break-up observed.