PD CEN/TS 16717:2015

BSI Standards Publication

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

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National foreword

This Published Document is the UK implementation of CEN/TS 16717:2015.

The document has been produced as a Technical Specification as it describes a new method of measuring the dynamic properties of sports surfaces. Whilst the procedure has been used for several years on long pile synthetic turf sports surfaces, there is little experience of using it on low shock absorbing and deforming surfaces. Additionally, the current calculation of energy restitution and its relevance is currently being further researched.

The UK technical committee advises that users of this Technical Specification should be aware of the following:

- The test results recorded on systems below 25% shock absorption should be used as indicative and not definitive.
- The test results recorded on systems below 4 mm deformation should be used as indicative and not definitive.
- Energy restitution calculation may differ in the future when current research is completed.

The UK participation in its preparation was entrusted to Technical Committee PRI/57, Surfaces for sports areas.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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English Version

Surface for sports areas - Method of test for the determination of shock absorption, vertical deformation and energy restitution using the advanced artificial athlete

Sols sportifs - Méthode d'essai de détermination de l'absorption des chocs, de la déformation verticale et de la restitution d'énergie, au moyen de l'athlète artificiel amélioré

Sportböden - Prüfverfahren zur Bestimmung des Kraftabbaus, der vertikalen Verformung und der Energierückgabe mit dem weiterentwickelten künstlichen Sportler

This Technical Specification (CEN/TS) was approved by CEN on 14 July 2014 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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Foreword

This document (CEN/TS 16717:2015) has been prepared by Technical Committee CEN/TC 217 “Surfaces for sports areas”, the secretariat of which is held by AFNOR.

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1 Scope

This Technical Specification specifies a method of test for measuring the shock absorption, vertical deformation, and energy restitution characteristics of sports surfaces. It is not considered appropriate for rigid sports surfaces that have shock absorbing properties of 10 % FR (Force reduction) or less.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12229, *Surfaces for sports areas - Procedure for the preparation of synthetic turf and needle-punch test pieces*

EN 12504-2, *Testing concrete in structures - Part 2: Non-destructive testing - Determination of rebound number*

3 Terms, definitions and symbols

3.1 Terms and definitions

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

3.1.1
shock absorption (SA)
ability of a sports surface to reduce the impact force of a body falling onto the surface

Note 1 to entry: This reduction in impact force is expressed as a percentage reduction in force (Force Reduction) when compared to a reference force of 6760 N, which is the theoretical maximum impact force that could occur when the test is undertaken on a rigid non shock absorbing surface (e.g.) concrete.

3.1.2
deformation (D)
measure of how far a test foot compresses or penetrates into the surface when a standard impact force is applied

3.1.3
energy restitution (ER)
measure of the energy returned by the sports surface after the impact force has been applied

3.1.4
energy restitution coefficient
ratio of the dynamic load energy applied to the surface to the energy returned by the surface (R)

3.1.5
sports surface
all components including the playing surface and sub-surface that may influence the dynamic properties of the surface. These may include shockpads or 'dynamic base constructions for synthetic turf systems, battens and sub-assemblies for indoor flooring structures, etc

3.1.6
point elastic sports surface
sports floor, to which the application of a point force causes deflection only at or close to the point of application of the force