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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

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Contents

	Page
1	Scope5
2	Normative references5
3	Terms, definitions and symbols5
3.1	Terms and definitions5
3.2	Symbols6
4	Principles6
5	Test specimens6
5.1	General6
5.2	Point-elastic and mixed-elastic sports surfaces6
5.3	Area-elastic and combined-elastic sports7
5.4	Synthetic turf and textile sports surfaces7
6	Laboratory tests conditions7
6.1	Characteristics of the laboratory floor7
6.2	Conditioning and Test Temperature7
7	Site tests conditions7
8	Test Apparatus7
9	Verification of impact speed10
9.1	General10
10	Checking of force on concrete11
11	Test procedure11
11.1	General11
11.2	Method A11
11.3	Method B12
11.4	Calculation of Shock Absorption and expression of results12
11.5	Calculation of Deformation and expression of results12
11.6	Calculation of Energy Restitution and expression of results13
11.7	Checking of the algorithm14
Annex A (informative)	Positions for laboratory tests on test specimens of indoor area elastic and combined floor15
A.1	General15
A.2	Area-elastic sports floor with elastic construction (Figures A.1 to A.5)15
A.2.1	Key15
A.2.2	Positioning of the system measuring spots15
A.3	Area-elastic sports floor with elastic construction (Figures A.6 to A.10)17
A.3.1	Key17
A.3.2	Positioning of the system measuring spots18
A.4	Area-elastic sports floor with elastic construction (Figures A.11 to A.15)20
A.4.1	Key20
A.4.2	Positioning of the system measuring spots20

A.5	Area-elastic sports floor with elastic construction (Figures A.16 to A.19)	22
A.5.1	Key	22
A.5.2	Positioning of the system measuring spots	22
A.6	Area-elastic sports floor with elastic construction (Figures A.20 to A.23)	23
A.6.1	Key	24
A.6.2	Positioning of the system measuring spots	24
A.7	Area-elastic sports floor with elastic construction (Figures A.24 to A.25)	25
A.7.1	Key	25
A.7.2	Positioning of the system measuring spots	25
A.8	Site test	26
A.9	Positioning of the system measuring spots for indoor point elastic and mixed floors	27
A.9.1	Laboratory test	27
A.9.2	Site test	27
A.10	Positioning of the system measuring spots for surface for sports areas (EN 14877 and EN 15330)	27
A.10.1	Laboratory test	27
A.10.2	Site test	27
Annex B (normative)	Expression of results	28
Annex C (informative)	Example of raw data and theoretical results to check algorithm	29

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