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**Podloge za notranje športne dejavnosti – Ugotavljanje odpornosti proti trenju pri vrtenju**

Surfaces for indoor sports areas - Determination of rotational friction

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ICS

English version

## Surfaces for indoor sports areas - Determination of rotational friction

Sols sportifs intérieurs - Détermination de la glissance en rotation

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 217.

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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# Contents

Page

Foreword.....	3
1 Scope .....	3
2 Normative references .....	3
3 Terms and definitions.....	3
4 Principle .....	3
5 Sampling .....	3
5.1 Laboratory testing .....	3
5.2 Field testing .....	4
6 Apparatus .....	4
6.1 Test unit .....	4
6.2 Measuring and recording instruments .....	4
7 Preparation of test pieces .....	4
7.1 Laboratory testing .....	4
7.2 Field testing .....	4
8 Procedure .....	4
9 Expression of results .....	5
10 Uncertainty .....	5
11 Test report .....	5

[oSIST prEN 14903:2006  
https://standards.iteh.ai/catalog/standards/sist/0228db47-233a-40a7-88c1-0a34211cdba8/osist-pren-14903-2006](https://standards.iteh.ai/catalog/standards/sist/0228db47-233a-40a7-88c1-0a34211cdba8/osist-pren-14903-2006)

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## Foreword

This document (prEN 14903:2004) 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.

## 1 Scope

This European Standard specifies a method for the determination of the friction between any type of indoor sports surface and a rotating foot with a vertical load.

NOTE This method simulates the load exerted by an athlete in a rotating movement on the floor.

## 2 Normative references

Not applicable.

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## 3 Terms and definitions (standards.iteh.ai)

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

### 3.1 friction coefficient

horizontal force between the test foot and the floor (derived from the measured torque) divided by the vertical load on the foot when the foot rotates (see clause 9)

### 3.2 vertical load

constant, vertical force exerted on the floor by the test foot

### 3.3 torque

force transferred to the test foot from the floor when the test foot under vertical load rotates on the floor

## 4 Principle

Friction is measured by allowing a circular test foot under a vertical load to rotate on the floor at a constant speed. The torque between the floor surface and the test foot during the test is recorded. Additionally, the friction coefficient,  $\mu$ , may be calculated as described in clause 9. The method can be used both in the laboratory and on site in sports halls.

## 5 Sampling

### 5.1 Laboratory testing

At least five test pieces shall be supplied large enough to carry out tests in at least three different places. For constructions with top layers of parquet, wooden boards, etc., only the parquet, etc. shall be used in the test.

For point-elastic construction systems and mixed-elastic construction systems, the whole system shall be tested. If necessary, the test pieces shall be glued to chipboard pieces ( $22 \pm 2$ ) mm thick of a type used under floors in apartment buildings to achieve a firm and stable support. The floor material under test shall be fixed to the laboratory floor to avoid movement during the test.

## 5.2 Field testing

The entire floor shall be considered as a test floor, the test points being chosen and noted by the person carrying out the test.

# 6 Apparatus

## 6.1 Test machine

The test machine shall comprise the following.

- a) An electrically driven gear motor with a vertical outgoing shaft that rotates clockwise at 30 rpm. A torque transducer, a universal joint and the test foot are attached to the shaft.
- b) A test foot comprising a steel disc having a diameter of  $(100 \pm 1)$  mm to the underside of which shall be glued a neoprene rubber sole at least 5 mm thick.
- c) A motor unit attached to a motor frame, hinged at the back to the lower frame thus enabling the apparatus to be tilted upwards/backwards from the lower frame to enable the rubber soles to be changed or cleaned or when the torque transducer is calibrated. The lower frame shall rest on rubber linings to prevent movement of the apparatus during the test, the test unit being kept stable by the weight of the person conducting the test who stands on the lower frame during the test.
- d) The motor, test foot and frame shall be mounted and loaded so that the vertical force exerted by the test foot against the floor is  $(500 \pm 5)$  N.

## 6.2 Measuring and recording instruments

The measuring and recording instruments shall comprise a torque transducer located in the test unit, a transducer amplifier and a Y-t graphic recorder. The instruments shall be capable of recording torque peaks having a duration of 10 ms or longer and torques up to 100 Nm to an accuracy of within 3 % of the measured value.

# 7 Preparation of test pieces

## 7.1 Laboratory testing

The test pieces (5.1) shall be conditioned for 16 h at a temperature of  $(23 \pm 2)$  °C and a relative humidity of  $(50 \pm 5)$  %. The temperature and relative humidity used shall be recorded.

## 7.2 Field testing

No conditioning is required but the temperature and relative humidity during the test shall be recorded.

# 8 Procedure

Before the test, clean the area of the floor to be tested with a soft cloth or paper towel to remove any dust or loose dirt. Clean the rubber sole on the test foot with an abrasive cloth and remove any dust with a brush. Place the apparatus (6.1) over the test piece for laboratory testing or the floor for field testing, such that the