



# SLOVENSKI STANDARD

## SIST EN 1176-5:2008

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Playground equipment and surfacing - Part 5: Additional specific safety requirements and  
test methods for carousels

Spielplatzgeräte und Spielplatzböden - Teil 5: Zusätzliche besondere  
sicherheitstechnische Anforderungen und Prüfverfahren für Karussells

Equipements et sols d'aires de jeux - Partie 5 : Exigences de sécurité et méthodes  
d'essai complémentaires spécifiques aux maneges

**Ta slovenski standard je istoveten z: EN 1176-5:2008**

### **ICS:**

97.200.40

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Playgrounds

**SIST EN 1176-5:2008**

**en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

EN 1176-5

May 2008

ICS 97.200.40

Supersedes EN 1176-5:1998

English Version

Playground equipment and surfacing - Part 5: Additional specific  
safety requirements and test methods for carousels

Équipements et sols d'aires de jeux - Partie 5 : Exigences  
de sécurité et méthodes d'essai complémentaires  
spécifiques aux manèges

Spielplatzgeräte und Spielplatzböden - Teil 5: Zusätzliche  
besondere sicherheitstechnische Anforderungen und  
Prüfverfahren für Karussells

This European Standard was approved by CEN on 25 April 2008.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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## Foreword

This document (EN 1176-5:2008) has been prepared by Technical Committee CEN/TC 136 "Sports, playground and other recreational facilities and equipment", the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by November 2008, and conflicting national standards shall be withdrawn at the latest by May 2009.

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

This document supersedes EN 1176-5:1998.

This European Standard consists of a number of parts as follows:

EN 1176-1, *Playground equipment and surfacing — Part 1: General safety requirements and test methods*

EN 1176- 2, *Playground equipment and surfacing — Part 2: Additional specific safety requirements and test methods for swings*

EN 1176- 3, *Playground equipment and surfacing — Part 3: Additional specific safety requirements and test methods for slides*

EN 1176- 4, *Playground equipment and surfacing — Part 4: Additional specific safety requirements and test methods for cableways*

EN 1176- 5, *Playground equipment and surfacing — Part 5: Additional specific safety requirements and test methods for carousels*

EN 1176- 6, *Playground equipment and surfacing — Part 6: Additional specific safety requirements and test methods for rocking equipment*

EN 1176- 7, *Playground equipment and surfacing — Part 7: Guidance on installation, inspection, maintenance and operation*

EN 1176-10, *Playground equipment and surfacing — Part 10: Additional specific safety requirements and test methods for fully enclosed play equipment*

EN 1176-11, *Playground equipment and surfacing — Part 11: Additional specific safety requirements and test methods for spatial network*

This part of EN 1176 should not be used in isolation, but in conjunction with EN 1176-1, EN 1176-7 and EN 1177.

For inflatable play equipment see:

EN 14960, *Inflatable play equipment — Safety requirements and test methods*.

The principal changes from the previous edition of this part of EN 1176 are as follows:

- a) The requirement for speed of rotation is now limited to those carousels that use mechanical advantage to raise speed, whereas in the previous edition the requirement was generally applicable.

**EN 1176-5:2008 (E)**

- b) The free space/falling space for type C carousels has been increased and requirements for falling height introduced.
- c) Requirements have been introduced for shock absorbing properties for seats of type A carousels.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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## 1 Scope

This document is applicable to carousels that are used as playground equipment for children, as defined in 3.1 to 3.6.

This document specifies additional safety requirements for carousels of diameter greater than 500 mm intended for permanent installation for use by children.

This document is not applicable to equipment where the main play function is not rotating.

This document is not applicable to motor-driven carousels, fairground carousels or climbing drums.

## 2 Normative references

The following referenced documents are indispensable for the application 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 1176-1:2008, *Playground equipment and surfacing — Part 1: General safety requirements and test methods*

EN 1176-2:2008, *Playground equipment and surfacing — Part 2: Additional specific safety requirements and test methods for swings*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1176-1:2008 and the following apply.

### 3.1

#### **carousel**

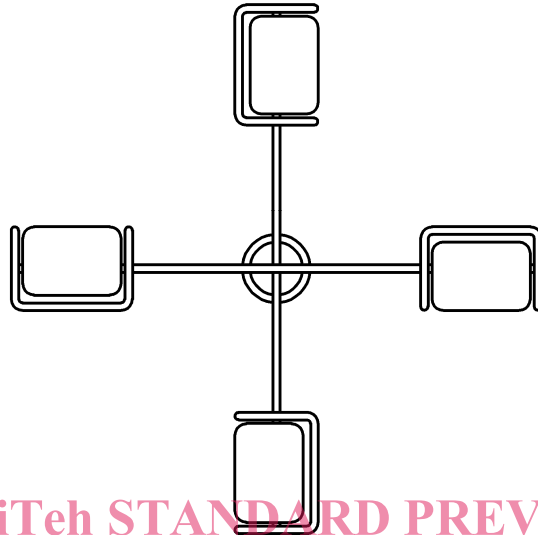
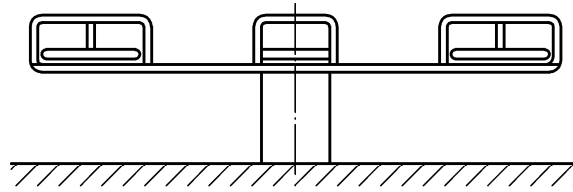
playground equipment intended for more than one user, that rotates around a central vertical axis without oscillation

### 3.2

#### **carousel type A**

rotating chairs

carousels without a closed rotating platform whose user stations are defined by seats or handholds that are rigidly connected with the central shaft via the supporting structure (see Figure 1)



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Figure 1 — Example of carousel type A (rotating chair)

### 3.3

#### carousel type B

##### classic carousel

carousels with a closed rotating platform whose user stations are defined by the upper side of the platform itself and/or by additional seats or handholds that are rigidly fixed on the platform and/or the central shaft (see Figure 2)

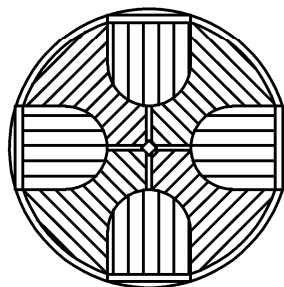
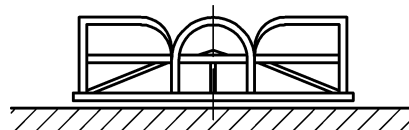


Figure 2 — Example of carousel type B (classic carousel)



## 3.4

**carousel type C**

spinning mushrooms, hanging glides

carousels whose user stations are rigidly (spinning mushrooms) or flexibly (hanging glides) fixed to the under side of the supporting structure (see Figure 3)

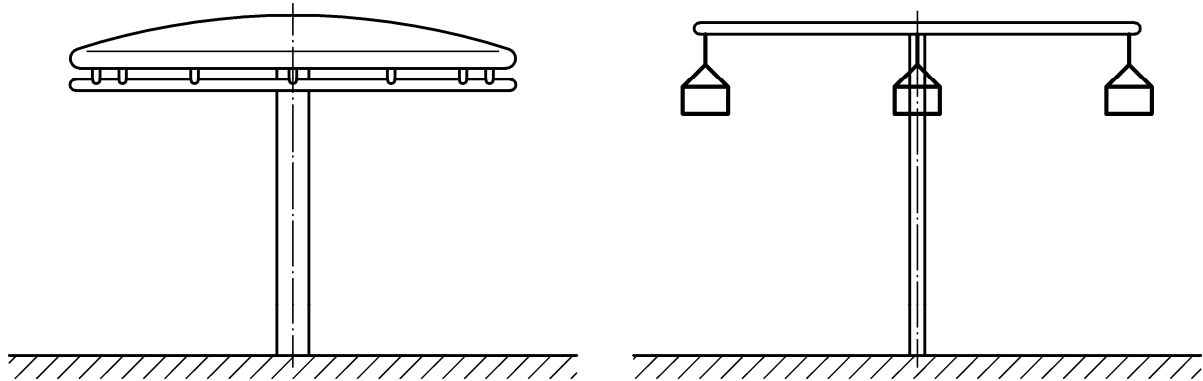


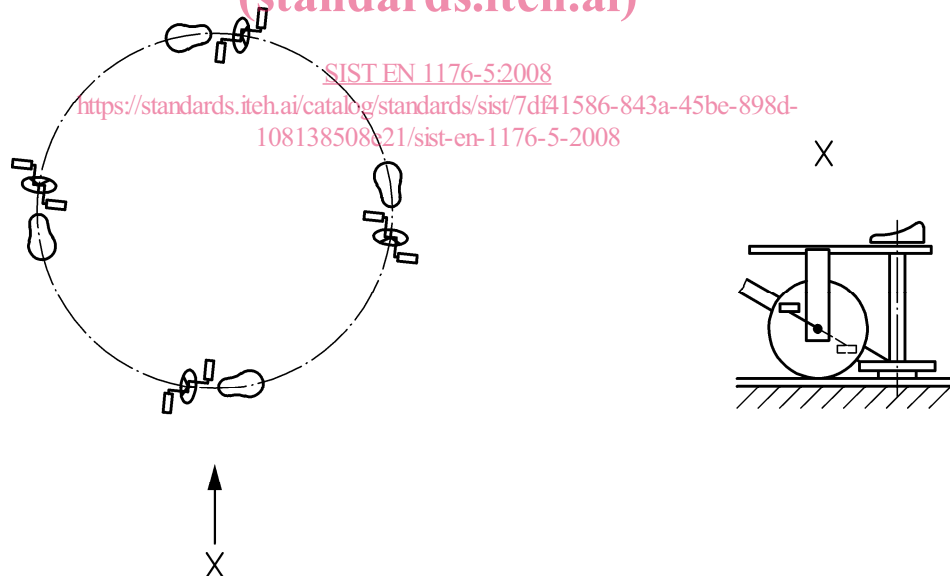
Figure 3 — Example of carousel type C (spinning mushrooms, hanging glides)

## 3.5

**carousel type D**

track-driven carousel

carousel structures that are set in rotation around flat or undulating circular tracks by muscle power (from the hands or feet) transmitted to drive wheels (see Figure 4)

**Key**

view on X (enlarged)

Figure 4 — Example of carousel type D (track-driven carousel)

## EN 1176-5:2008 (E)

**3.6**  
**carousel type E**  
 giant revolving disks  
 giant revolving disks are carousels having an inclined axis (as specified in 4.5) whose user stations are not clearly definable (see Figure 5)

NOTE They can be set in rotation by the user's physical strength up to the running speed of the users and taking into account gravity.

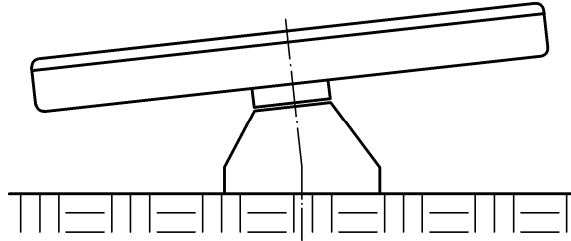


Figure 5 — Example of carousel type E (giant revolving disk)

**3.7**  
**user station**  
 seat or platform and/or handholds on a carousel that allow the user to stay on or to propel the carousel

NOTE The user stations are either rigidly connected to the supporting structure or are mounted on it so as to be mobile.

**3.8**  
**carousel range**  
 space in which the user stations and their supporting structures move when the carousel is in use

**3.9**  
**ground clearance**  
 $H_2$   
 clear distance between the moving parts of the structure and the installation surface (see Figure 6)

**3.10**  
**carousel diameter**  
 $d$   
 diameter of the circle described by the construction element farthest away from the centre of the rotational axis where the carousel is in use

**3.11**  
**carousel axis**  
 central shaft on which the supporting structure is pivot-mounted and that is rigidly connected to the foundations or installation components

NOTE The carousel axis can also be a theoretical line when the carousel structure is mounted on a circular track.

## 4 Safety requirements

### 4.1 General

Carousels shall conform to EN 1176-1 unless otherwise specified in this part of EN 1176.

NOTE Hand rails provided on carousels need not meet the height requirements given in EN 1176-1:2008, 4.2.4.2.

## 4.2 Free height of fall and impact area

Except for carousels of type C, the free height of fall shall be not more than 1 000 mm at any point.

For type C carousels, the free height of fall shall be measured from the grip position minus 1 500 mm to the surface below (see also 5.3.4).

The impact area around the carousel shall have critical fall height of at least 1 000 mm.

## 4.3 Free space/falling space

NOTE See Figure 6.

The principal risk connected to carousels is that of the centrifugal force which results from the rotation. In deviating from the requirements for free space (see EN 1176-1), for carousels the free space and falling space are the same.

NOTE This is substantiated by the fact that the centrifugal force which is generated by the carousel often leads to the user leaving the carousel in an uncontrolled movement. Therefore, attention should be paid to there being no obstacles in the falling space.

Unless otherwise specified, the free space/falling space shall be as follows:

- a) to the side of the carousel, at least 2 000 mm; and
- b) for the free space above the carousel, at least 2 000 mm.

When carousels are placed near other items of playground equipment, the impact area of the carousel and the impact area of the other playground equipment shall not overlap.

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