



SLOVENSKI STANDARD SIST EN 1176-4:2018

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Playground equipment and surfacing - Part 4: Additional specific safety requirements and test methods for cableways

Spielplatzgeräte und Spielplatzböden - Teil 4: Zusätzliche besondere sicherheitstechnische Anforderungen und Prüfverfahren für Seilbahnen
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Équipements et sols d'aires de jeux - Partie 4: Exigences de sécurité et méthodes d'essai complémentaires spécifiques aux téléphériques
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97.200.40 Igrišča Playgrounds

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EUROPEAN STANDARD
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EN 1176-4

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English Version

Playground equipment and surfacing - Part 4: Additional specific safety requirements and test methods for cableways

Équipements et sols d'aires de jeux - Partie 4:
Exigences de sécurité et méthodes d'essai
complémentaires spécifiques aux téléphériques

Spielplatzgeräte und Spielplatzböden - Teil 4:
Zusätzliche besondere sicherheitstechnische
Anforderungen und Prüfverfahren für Seilbahnen

This European Standard was approved by CEN on 2 July 2017.

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-CENELEC Management Centre or to any CEN member.

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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-CENELEC Management Centre has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 1176-4:2017) 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 April 2018, and conflicting national standards shall be withdrawn at the latest by October 2018.

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.

This document supersedes EN 1176-4:2008.

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

- a) revised requirements for the different types of grips and seats;
- b) revised requirements for seated and hanging types of equipment;
- c) test methods have been improved in the light of experience.

EN 1176, *Playground equipment and surfacing*, consists of the following parts:

- *Part 1: General safety requirements and test methods*
- *Part 2: Additional specific safety requirements and test methods for swings*
- *Part 3: Additional specific safety requirements and test methods for slides*
- *Part 4: Additional specific safety requirements and test methods for cableways*
- *Part 5: Additional specific safety requirements and test methods for carousels*
- *Part 6: Additional specific safety requirements and test methods for rocking equipment*
- *Part 7: Guidance on installation, inspection, maintenance and operation*
- *Part 10: Additional specific safety requirements and test methods for fully enclosed play equipment*
- *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*.

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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

EN 1176-4:2017 (E)**1 Scope**

This European Standard is applicable to cableways whereby children travel on or along a cable by the use of gravity. This standard specifies additional safety requirements for cableways intended for permanent installation for use by children.

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 1176-1:2017, *Playground equipment and surfacing — Part 1: General safety requirements and test methods*

EN 1176-2:2017, *Playground equipment and surfacing — Part 2: Additional specific safety requirements and test methods for swings*

EN 1176-6:2017, *Playground equipment and surfacing — Part 6: Additional specific safety requirements and test methods for rocking equipment*

3 Terms and definitions

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

**3.1
cableway**

item of children's playground equipment whereby children can travel on or along a cable under the force of gravity

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Note 1 to entry: See Figure 1.

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**3.2
hanging type cableway**

cableway equipped with a suspension assembly which includes a grip for the user

**3.3
seating type cableway**

cableway equipped with a suspension assembly which includes a seat

**3.4
starting point**

area in which the user can reach the grip or seat and set the equipment in motion

**3.5
area of travel**

area in which the user can travel freely

**3.6
terminus**

area furthest away from the starting point that the user can reach by travelling across the area of travel

**3.7
traveller**

moving part that, by influence of gravity, moves the user along the cable

Note 1 to entry: See Figure 1.

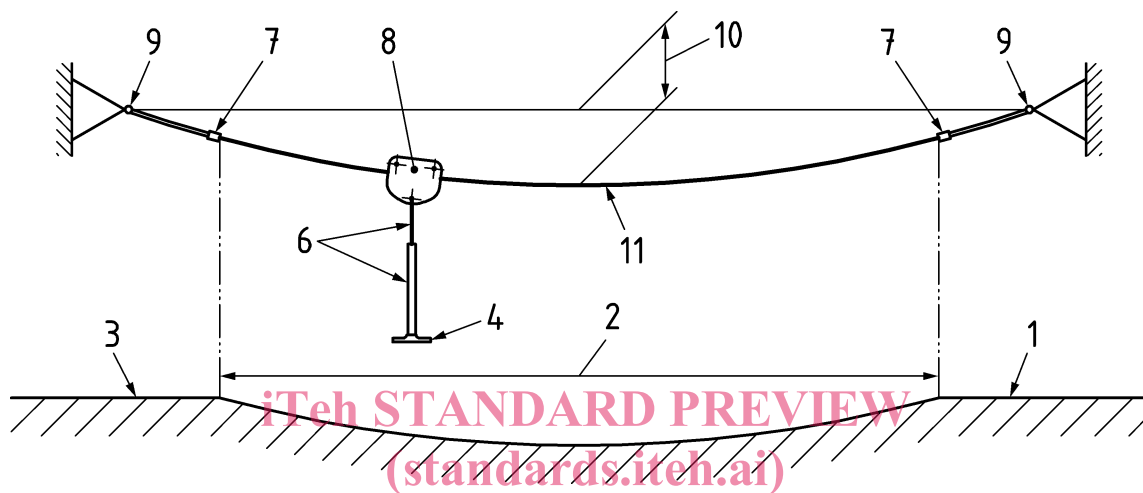
3.8**suspension element**

part of the structure between the traveller and the seat or grip

3.9**suspension assembly**

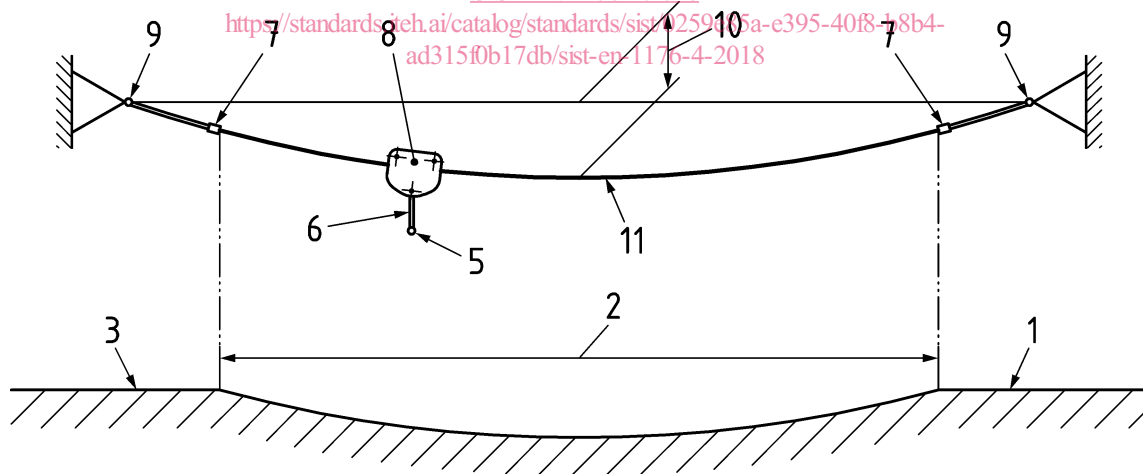
assembly of components hanging beneath the traveller

EXAMPLE Suspension elements, grips and/or seats.

**a) Cableway terms (seated)**

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**b) Cableway terms (hanging)****Key**

1	terminus/starting point	5	grip	9	cable fixing points
2	area of travel	6	suspension element	10	sag
3	terminus/starting point	7	stop	11	cable
4	seat	8	traveller		

Figure 1 — Cableway terms

EN 1176-4:2017 (E)**4 Safety requirements****4.1 General**

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

4.2 Framework and fixing points for the cable

Framework and fixing points for the cable shall be designed to withstand the computed loads (static and dynamic) transmitted by the cable, in accordance with EN 1176-1.

There shall be an adjusting device so that the correct sag can be maintained for the life of the cable.

4.3 Calculation of forces acting on the cable of a cableway

The cable shall be designed so that it can withstand the forces acting upon it according to EN 1176-1:2017, Annex A.

4.4 Stops

When tested in accordance with Annex A, the stop at the terminus shall progressively slow down the traveller until it stops and the suspension element shall not swing through an angle of more than 45°, as shown in Figure 4.

NOTE This test includes an allowance for starting speed.

4.5 Traveller

The traveller shall be constructed so that it cannot slip out of place and the sides are closed to prevent any access by the user to moving parts from the side.

Openings for the cable may allow the 8 mm finger rod (see EN 1176-1:2017, Figure D.10) to pass through but the rod shall not get squeezed between any moving parts when it is inserted by the length of 70 mm.

There shall be only one traveller on the same cable.

The traveller and suspension element shall be designed such that it does not cause damage to the cable during use.

4.6 Suspension assembly

For seating type cableways rigid suspension elements shall not be used.

If a flexible suspension element is used it shall be designed to prevent risk of strangulation.

If a pulling device for the traveller is provided it shall be designed to prevent risk of strangulation.

4.7 Cableways arranged in parallel

For cableways arranged in parallel, the distance between the cables shall be at least 2 000 mm.

4.8 Grips

For hanging type cableways, the grip shall be constructed to ensure that the user can easily release their hold at all times. If the grip is an enclosed loop, it shall not be made from flexible material that could tighten around the user's arm or hand thus preventing the user from releasing their grip quickly. Enclosed loops shall conform to the entrapment requirements in EN 1176-1:2017, 4.2.7.

It shall not be possible to climb on the grip.

If the grip is rigid and does not form a loop, the ends of the grip shall conform to EN 1176-6:2017, Annex E.

NOTE This is to reduce the risk of eye injury from the ends of projecting hand supports.

Suspension type cableways from which users will hang by the hands shall conform to EN 1176-1:2017, 4.2.4.6.

4.9 Seats

Seats shall be designed so that the user can leave the cableway quickly and at all times. Seats which form loops or circular rings shall not be used.

When tested in accordance with EN 1176-2:2017, Annex C, peak values of acceleration shall be not greater than 50 g and the average surface compression shall not exceed 90 N/cm².

4.10 Speed

When tested in accordance with Annex B, the maximum speed of the traveller shall not exceed 7 m/s.

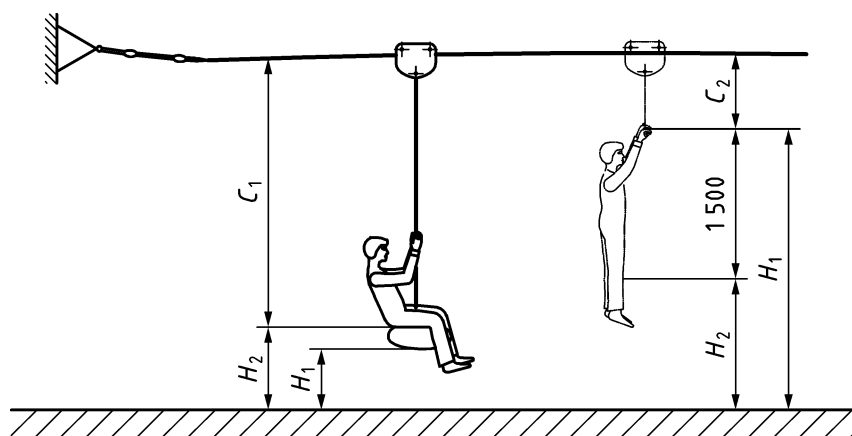
4.11 Free height of fall

The free height of fall, for all cableway types, shall be measured unloaded, and with the seat or hand grip hanging vertically below the cable. In the sitting position the free height of fall, H_2 , shall not exceed 2 000 mm.

In the hanging position the free height of fall shall be measured from the grip position minus 1 500 mm to the surface below, as the user should not be able to access the cable (see Figure 2). In the hanging position, the free height of fall, H_2 , shall not exceed 1 500 mm (see Figure 2).

The sagging of the cable and thus the distance ground/cable, ground/grip and ground/seat are dependent on temperature. The minimum and maximum dimensions specified apply to a reference temperature of 15 °C.

Dimensions in millimetres



Key

C_1 cable length from the seat

H_1 ground clearance

C_2 cable length from the grip

H_2 free height of fall

Figure 2 — Determination of cable length, ground clearance and free height of fall