SVENSK STANDARD
SS-EN 1176-4:2017

Fastställd/Approved: 2017-11-06
Publicerad/Published: 2017-11-07
Utgåva/Edition: 3
Språk/Language: engelska/English
ICS: 97.200.40

Lekredskap och ytbeläggning – Del 4: Linbanor – Kompletterande säkerhetskrav och provningsmetoder

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

Standarder får världen att fungera

SIS (Swedish Standards Institute) är en fristående ideell förening med medlemmar från både privat och offentlig sektor. Vi är en del av det europeiska och globala nätverk som utarbetar internationella standarder. Standarder är dokumenterad kunskap utvecklad av framstående aktörer inom industri, näringsliv och samhälle och befrämjar handel över gränser, bidrar till att processer och produkter blir säkrare samt effektiviserar din verksamhet.

Delta och påverka
Som medlem i SIS har du möjlighet att påverka framtida standarder inom ditt område på nationell, europeisk och global nivå. Du får samtidigt tillgång till tidig information om utvecklingen inom din bransch.

Ta del av det färdiga arbetet
Vi erbjuder våra kunder allt som rör standarder och deras tillämpning. Hos oss kan du köpa alla publikationer du behöver – allt från enskilda standarder, tekniska rapporter och standard-paket till handböcker och onlinetjänster. Genom vår webbtjänst e-nav får du tillgång till ett lättnavigerat bibliotek där alla standarder som är aktuella för ditt företag finns tillgängliga. Standarder och handböcker är källor till kunskap. Vi säljer dem.

Utveckla din kompetens och lyckas bättre i ditt arbete
Hos SIS kan du gå öppna eller företagsinterna utbildningar kring innehåll och tillämpning av standarder. Genom vår närhet till den internationella utvecklingen och ISO får du rätt kunskap i rätt tid, direkt från källan. Med vår kunskap om standarders möjligheter hjälper vi våra kunder att skapa verklig nytta och lönsamhet i sina verksamheter.

Vill du veta mer om SIS eller hur standarder kan effektivisera din verksamhet är du välkommen in på www.sis.se eller ta kontakt med oss på tel 08-555 523 00.

Standards make the world go round

SIS (Swedish Standards Institute) is an independent non-profit organisation with members from both the private and public sectors. We are part of the European and global network that draws up international standards. Standards consist of documented knowledge developed by prominent actors within the industry, business world and society. They promote cross-border trade, they help to make processes and products safer and they streamline your organisation.

Take part and have influence
As a member of SIS you will have the possibility to participate in standardization activities on national, European and global level. The membership in SIS will give you the opportunity to influence future standards and gain access to early stage information about developments within your field.

Get to know the finished work
We offer our customers everything in connection with standards and their application. You can purchase all the publications you need from us - everything from individual standards, technical reports and standard packages through to manuals and online services. Our web service e-nav gives you access to an easy-to-navigate library where all standards that are relevant to your company are available. Standards and manuals are sources of knowledge. We sell them.

Increase understanding and improve perception
With SIS you can undergo either shared or in-house training in the content and application of standards. Thanks to our proximity to international development and ISO you receive the right knowledge at the right time, direct from the source. With our knowledge about the potential of standards, we assist our customers in creating tangible benefit and profitability in their organisations.

If you want to know more about SIS, or how standards can streamline your organisation, please visit www.sis.se or contact us on phone +46 (0)8-555 523 00

Europastandarden EN 1176-4:2017 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 1176-4:2017.

Denna standard ersätter SS-EN 1176-4:2008, utgåva 2.

The European Standard EN 1176-4:2017 has the status of a Swedish Standard. This document contains the official version of EN 1176-4:2017.

This standard supersedes the Swedish Standard SS-EN 1176-4:2008, edition 2.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Lekredskap, SIS/TK 379.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1176-4

October 2017

ICS 97.200.40

Supersedes EN 1176-4:2008

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.

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.

CEN members are the national standards bodies of 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 United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 1176-4:2017 E

Contents

Page

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.

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

Note 1 to entry: See Figure 1.

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

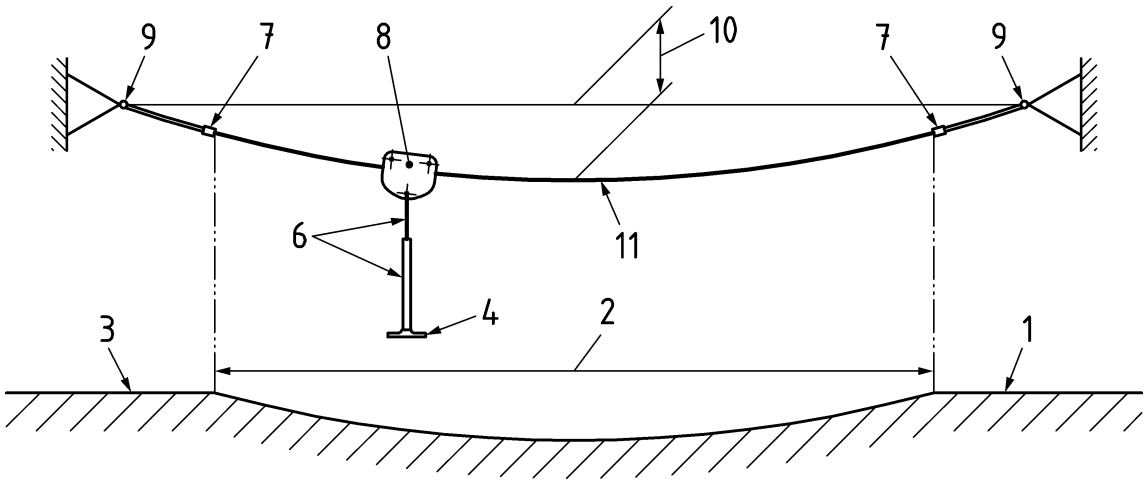
3.7
traveller
moving part that, by influence of gravity, moves the user along the cable

Note 1 to entry: See Figure 1.

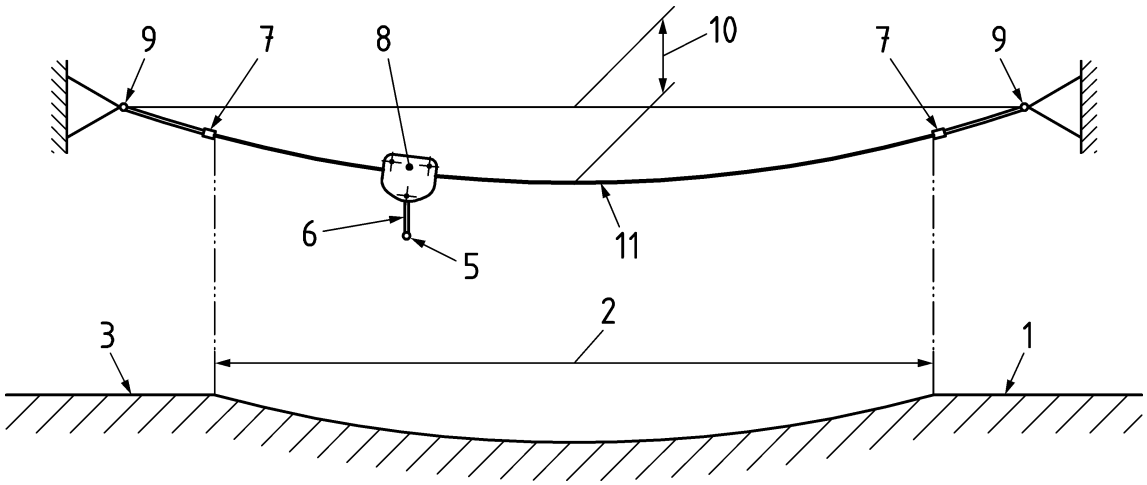
3.8
suspension element
part of the structure between the traveller and the seat or grip

3.9
suspension assembly
assembly of components hanging beneath the traveller

EXAMPLE Suspension elements, grips and/or seats.



a) Cableway terms (seated)



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

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/cm^2.

4.10 Speed

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

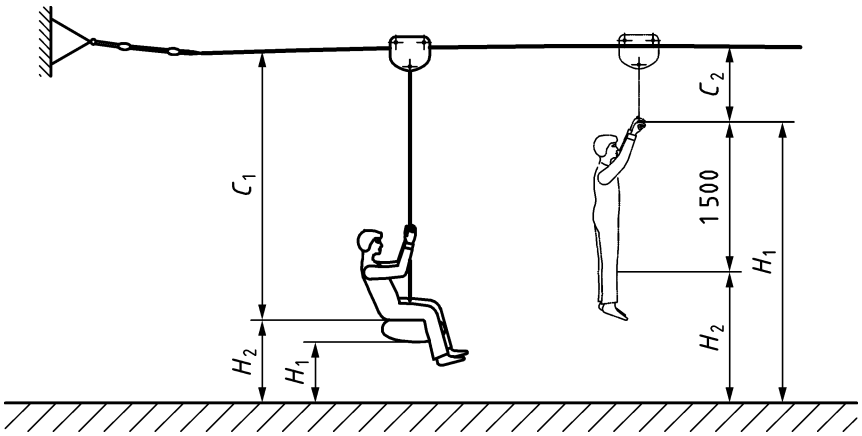
4.11 Free height of fall

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