



SLOVENSKI STANDARD

SIST EN 1176-2:2000

01-september-2000

CdfYa Uclfcý_]][f]ý '!'&"XY. 8 cXUtbY dcgYVbYj UfbcglbY'nU Hvj Y]b'dfYg_i gbY
a YrcXY'nU[i [U b]W

Playground equipment - Part 2: Additional specific safety requirements and test methods
for swings

Spielplatzgeräte - Teil 2: Zusätzliche besondere sicherheitstechnische Anforderungen
und Prüfverfahren für Schaukeln

Equipements d'aires de jeux - Partie 2: Exigences de sécurité et méthodes d'essai
complémentaires spécifiques aux balançoires

STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 1176-2:2000
<https://standards.iteh.ai/catalog/standards/sist/5a724d67-5296-4b7a-81f6-5f647ef6c722/sist-en-1176-2-2000>

Ta slovenski standard je istoveten z: EN 1176-2:1998

ICS:

97.200.40 Q!ž æ Playgrounds

SIST EN 1176-2:2000 en

ICS 97.200.40

Descriptors: playgrounds, recreation facilities, toys, swings, communal equipment, safety requirements, accident prevention, specifications, tests, measurements, impact tests, load capacity, marking

English version

Playground equipment - Part 2: Additional specific safety requirements and test methods for swings

Equipements d'aires de jeux - Partie 2: Exigences de sécurité et méthodes d'essai complémentaires spécifiques aux balançoires

Spielplatzgeräte - Teil 2: Zusätzliche besondere sicherheitstechnische Anforderungen und Prüfverfahren für Schaukeln

This European Standard was approved by CEN on 22 July 1998.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

<https://standards.iteh.ai/catalog/standards/sist/5a724d67-5296-4b7a-81f6-5f647ef6c722/sist-en-1176-2-2000>



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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Contents	Page
Foreword	3
1 Scope.....	4
2 Normative references	4
3 Definitions.....	4
4 Safety requirements.....	7
4.1 General	7
4.2 Ground clearance h_2	7
4.3 Seat clearance h_4 for single point suspension swings (Type 3).....	7
4.4 Minimum clearance and stability of swing seats with more than one point of suspension	7
4.5 Means of suspension	8
4.6 Seats and platforms (Type 3)	8
4.8 Structural integrity	9
4.9 Framework	10
4.10 Impact area	10
4.11 Additional requirements for swings with several rotational axes (Type 2)	13
4.12 Additional requirements for single-point swings (Type 3)	13
5 Test reports.....	13
6 Marking.....	14
Annex A (informative) Recommendations for design and siting of swings.....	15
Annex B (normative) Method for determination of swing seat impact resistance	16
Annex C (normative) Dynamic load test for swinging equipment	19

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 1176-2:2000

<https://standards.iteh.ai/catalog/standards/sist/5a724d67-5296-4b7a-81f6-51647ef6c722/sist-en-1176-2-2000>

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 136 "Sports, playground and other recreational 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 February 1999, and conflicting national standards shall be withdrawn at the latest by February 1999.

This standard consists of a number of parts as follows:

EN 1176-1	Playground equipment - Part 1: General safety requirements and test methods
EN 1176-2	Playground equipment - Part 2: Additional specific safety requirements and test methods for swings
EN 1176-3	Playground equipment - Part 3: Additional specific safety requirements and test methods for slides
EN 1176-4	Playground equipment - Part 4: Additional specific safety requirements and test methods for runways
prEN 1176-5	Playground equipment - Part 5: Additional specific safety requirements and test methods for carousels
EN 1176-6	Playground equipment - Part 6: Additional specific safety requirements and test methods for rocking equipment
EN 1176-7	Playground equipment - Part 7: Guidance on installation, inspection, maintenance and operation.

This standard should not be used in isolation, but in conjunction with EN 1176-1, EN 1176-7 and EN 1177 - Impact absorbing playground surfacing - Safety requirements and test methods. It amends and supplements EN 1176-1 and EN 1177.

Where swings are combined with other items of children's playground equipment, the relevant standards applying to the other items of equipment should also be consulted.

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

1 Scope

This standard specifies additional safety requirements for swings intended for permanent installation for use by children.

NOTE: Recommendations on the design and siting of swings are given in annex A.

2 Normative references

This European Standard incorporates by dated or undated references, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies:

EN 1176-1:1998	Playground equipment - Part 1: General safety requirements and test methods
EN 1177	Impact absorbing playground surfacing - Safety requirements and test methods

3 Definitions

For the purposes of this standard, the definitions given in EN 1176-1 apply, together with the following.

NOTE: In order not to confine the application of this European Standard to those items of equipment currently in use and hence to allow freedom of design for the manufacture of new equipment, only the fundamental forms of equipment and motion are defined.

3.1 swing: moving equipment where the weight of the user is supported below a pivot or universal joint.

3.2 swing with one rotational axis (Type 1): Seat, flexibly suspended individually from a load bearing cross beam that can swing to and fro in an arc at right angles to the cross beam (see figure 1).



Figure 1: Example of swing with one rotational axis (Type 1)

3.3 swing with several rotational axes (Type 2): Seat suspended from one or more load bearing cross beam, supported in such a way that it can move at right angles or longitudinally to cross beams (see figure 2).



Figure 2: Example of swing with several rotational axes (Type 2)

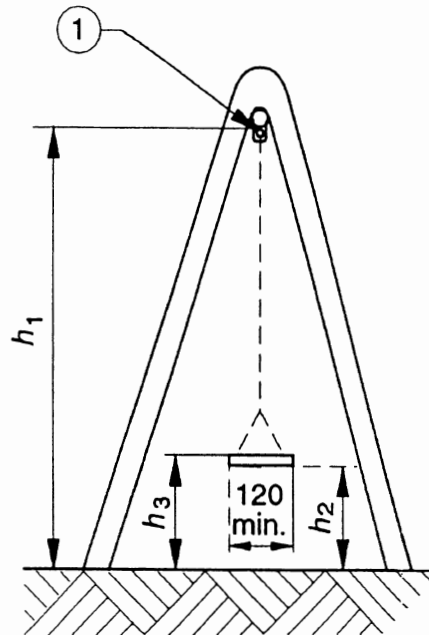
3.4 single point swing (Type 3): Seat or platform with suspension cables that meet at one fixing point (see figure 3). The swing can move in all directions.



Figure 3: Examples of single point swings (Type 3)

3.5 swing height h_1 : Distance between the middle of the fulcrum of the suspension and the playing surface (see figure 4).

Dimension in millimetres



1 Rotational axis

Figure 4: Swing height h_1 , ground clearance h_2 and height of seat h_3

3.6 length of swing suspension member, l : Distance between the middle of the fulcrum of the suspension member and top surface of the seat or platform.

NOTE: Suspension members include chains and ropes.

3.7 ground clearance, h_2 : Distance between the lowest part of the seat or platform and the playing surface when the swing is at rest (see figure 4).

3.8 height of seat, h_3 : Distance between the top of the seat or platform and the playing surface (see figure 4).

3.9 seat clearance, h_4 : Distance between the lower edge of the seat and any obstacle adjacent to the path of the swing, ground or suspension point (see figure 5).

3.10 flat seat: Seat without any back and side protections.

3.11 cradle seat: Seat provided with greater body support for younger or less able users.

3.12 platform (for a type 3 swing): Support primarily intended for use in a standing position.

4 Safety requirements

4.1 General

Swings shall comply with EN 1176-1 except in so far as they are modified by this standard.

4.2 Ground clearance h_2

The minimum ground clearance at rest position shall be 350 mm (see figure 4).

For tyre seats, the minimum ground clearance at rest shall be 400 mm.

4.3 Seat clearance h_4 for single point suspension swings (Type 3)

The minimum seat clearance shall be at least 400 mm (see figure 5).

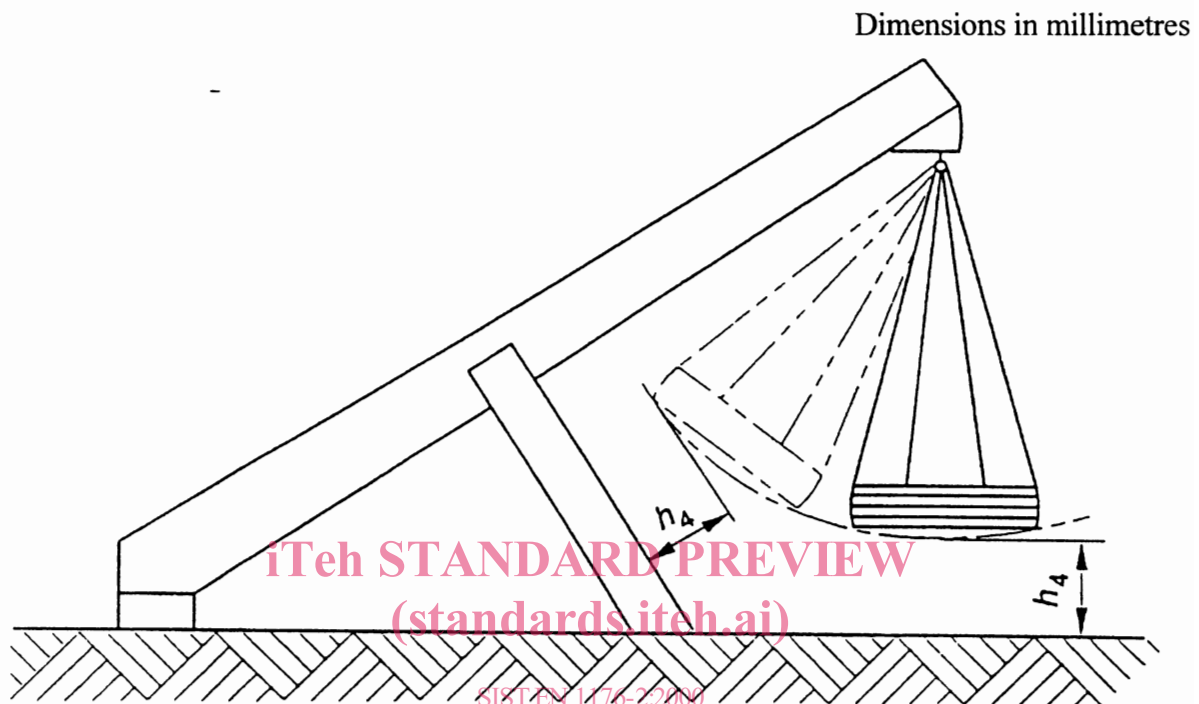


Figure 5: Example of a Type 3 swing showing seat clearance h_4

4.4 Minimum clearance and stability of swing seats with more than one point of suspension

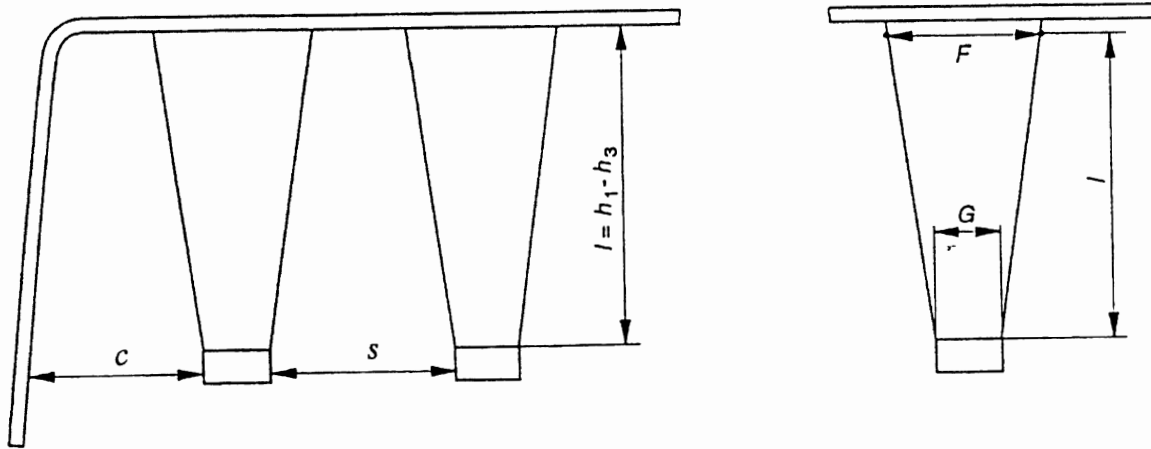
4.4.1 Minimum space between the seats of swings

The minimum horizontal dimension between the side of a swing seat and the adjacent structure in the rest position shall be c where $c \geq 20\% l + 200$ mm (see figure 6a)).

The minimum horizontal dimension between adjacent swing seats in the rest position shall be s , where $s \geq 20\% l + 300$ mm (see figure 6a)).

4.4.2 Stability of swing seats

The distance between the suspension members shall be F , where $F \geq G + 5\% l$ (see figure 6b)).



a) Minimum space between the seats of swings and the adjacent structure

b) Stability of swing seats

Figure 6: Minimum clearance and stability of swing seats with more than one point of suspension

4.5 Means of suspension

Fully rigid suspension members shall not be used. (See 4.2.12 and 4.2.13 of EN 1176-1 : 1998.)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

4.6 Seats and platforms (Type 3)

4.6.1 Flat seats

When tested in accordance with annex B, there shall be no peak values of acceleration greater than 50 g and the average surface compression shall not exceed 90 N/cm².

4.6.2 Cradle seats

The seat section of cradle seats shall conform to the requirements specified in 4.6.1. If the outermost edge of the superstructure (x) protrudes beyond a vertical line drawn from the outermost edge of the seat when tipped at an angle of 30 ° as shown in figure 7, then this shall also conform to the requirements of 4.6.1.

4.10.2 Extent of falling space

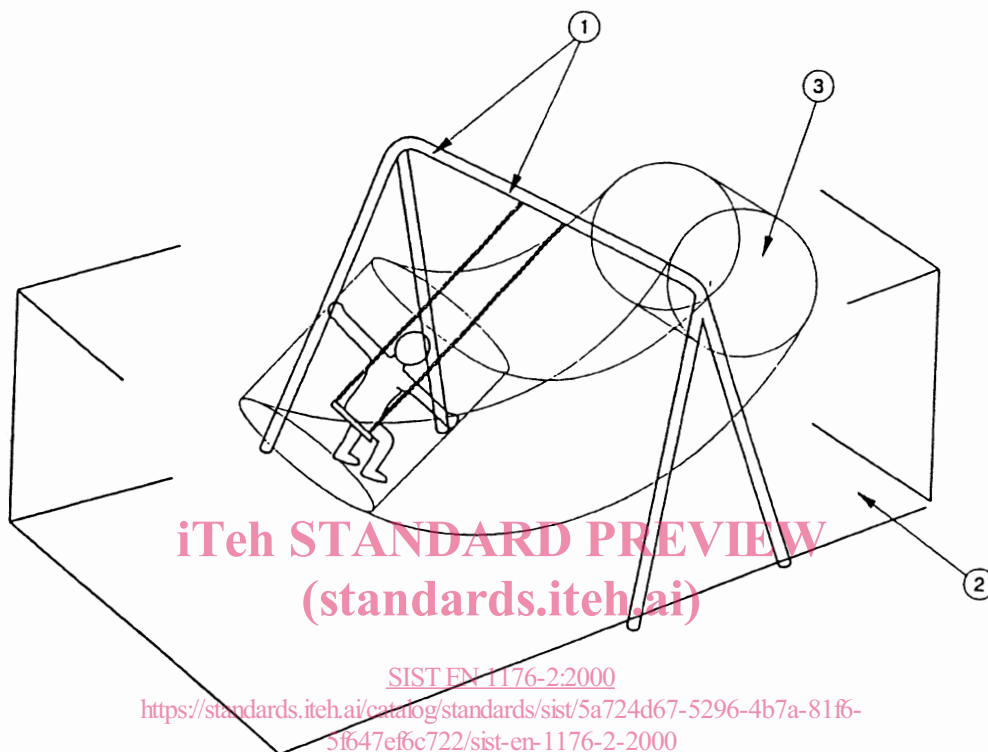
4.10.2.1 For all swings the extent of the impact absorbing surface shall be calculated by taking the point reached horizontally by the centre of the swing seat when it has travelled through an arc of 60° (which can be calculated as $0,867 \times$ the length of the suspension member l) and adding a fixed distance according to the construction of the surface.

In the case of impact absorbing surface that is level with the surrounding area (normally synthetic) the fixed additional length shall be 1,75 m and in the case of surface that is contained (normally loose fill) it shall be 2,25 m (see figure 8a)).

NOTE: The extent of the impact absorbing surface should be based on the foreseeable use of the swing.

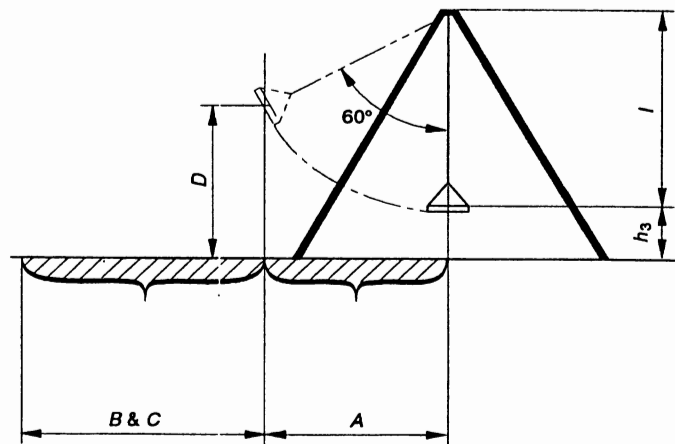
An example of the falling space of a swing is given in figure 9.

Falling spaces of swings shall not overlap (see 4.2.8.3 of EN 1176-1:1998).



- 1 Space occupied by the equipment
- 2 Falling space
- 3 Free space

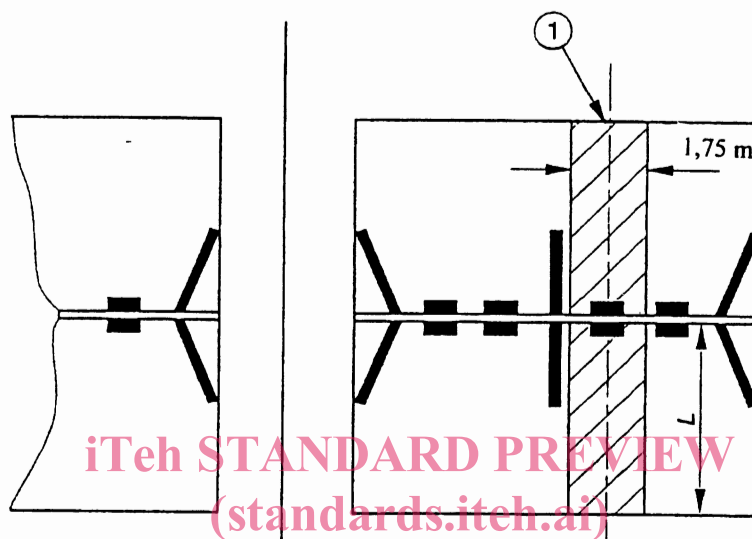
Figure 9: Falling space of a swing



- A is $0,867 \times (h_1 - h_3)$
- B is 1,75 m for level impact absorbing surfaces (normally synthetic)
- C is 2,25 m for contained impact absorbing surfaces (normally loosefill)
- D is the maximum free height of fall

a)

Dimensions in metres



iTeh STANDARD PREVIEW
(standards.itech.ai)

SIST EN 1176-2:2000

<https://standards.itech.ai/catalog/standards/sist/5a724d67-5296-467a-8116-5f647ef6c722/sist-en-1176-2-2000>

$L = A + B$ or $A + C$

1 Area to be covered by impact absorbing surface under each swing position

b)

Figure 8: Free height of fall and surfacing requirements beneath a swing