# DIN EN 1176-1

ICS 97.200.40

Supersedes
DIN EN 1176-1:2008-08,
DIN EN 1176-1 Corrigendum 1:2008-10 and
DIN EN 1176-1 Corrigendum 2:2008-12

## Playground equipment and surfacing – Part 1: General safety requirements and test methods; English version EN 1176-1:2017, English translation of DIN EN 1176-1:2017-12

Spielplatzgeräte und Spielplatzböden –
Teil 1: Allgemeine sicherheitstechnische Anforderungen und Prüfverfahren;
Englische Fassung EN 1176-1:2017,
Englische Übersetzung von DIN EN 1176-1:2017-12

Équipements et sols d'aires de jeux –
Partie 1: Exigences de sécurité et méthodes d'essai générales;
Version anglaise EN 1176-1:2017,
Traduction anglaise de DIN EN 1176-1:2017-12

Document comprises 108 pages

Translation by DIN-Sprachendienst.

In case of doubt, the German-language original shall be considered authoritative.



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*A comma is used as the decimal marker.*

## Start of application

The start of application of this standard is 2017-12-01.

For DIN EN 1176-1:2008-08 there is a transition period ending on 2018-10-31.

# National foreword

This standard includes safety requirements within the meaning of the *Produktsicherheitsgesetz (ProdSG)* (German Product Safety Act).

This document (EN 1176-1:2017) has been prepared by Technical Committee CEN/TC 136 "Sports, playground and other recreational facilities and equipment" (Secretariat: DIN, Germany).

The responsible German body involved in its preparation was *DIN-Normenausschuss Sport- und Freizeitgerät* (DIN Standards Committee Sports Equipment), Working Committee NA 112-07-01 AA "Playground equipment".

Where this standard has been identified by the *Ausschuss für Produktsicherheit* (German Committee for Product Safety) and reference to it has been published in the *Gemeinsames Ministerialblatt* (German Joint Ministerial Gazette) by the *Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (BAuA)* (German Federal Institute for Occupational Safety and Health), it is to be presumed that playground equipment which complies with this standard fulfil the relevant health and safety requirements.

Due to the legislation, a national deviation for Germany is given in Annex I.

With reference to the requirements contained in 5.2 "Confirming the adequate level of impact attenuation after installation of impact attenuating surfacing", National Annex NA "Confirming the adequate level of impact attenuation after installation of impact attenuating surfacing" instead of Annex H is applicable as national regulation in Germany.

For permanently installed playground equipment and surfacing in public areas in Germany, within the context of inclusion (belonging), the *Behinderten-Gleichstellungsgesetz* (*BGG* – "German Federal Act on the Equalization of Persons with Disabilities") and the "UN Convention on the Rights of Persons with Disabilities" (2009) are applicable and shall be observed. Accessibility is thus a prerequisite for inclusion. Corresponding requirements on planning and measures for the promotion of the senses and mobility are contained in DIN 18034, *Playgrounds and outdoor play areas — Requirements on planning, building and operation*. Technical requirements for public permanently installed playground equipment for the promotion of users with special abilities are contained in DIN 33942, *Barrier-free accessible playground equipment — Safety requirements and test methods*.

### Amendments

This standard differs from DIN EN 1176-1:2008-08, DIN EN 1176-1 Corrigendum 1:2008-10 and DIN EN 1176-1 Corrigendum 2:2008-12 as follows:

a) references to CEN/TR 16467:2013, CEN/TR 16598:2014, CEN/TR 16396:2012 and CEN/TR 16879:2016 have been included;

b) the Scope has been adapted to include a reference to permanently installed equipment and to electricity, water and UV radiation;

c) the definition of "easily accessible" (term 3.25) has been improved;

d) new definitions for “impact attenuating surfacing”, “adequate level of impact attenuation”, “forced movement”, “bouncing facilities”, “suspension bed”, “one post equipment”, “post installation inspection”, “fireman’s pole” and “tunnel” have been included;

e) subclause 4.2.4.1 has been adapted to Figure 8;

f) in subclauses 4.2.4.3 and 4.2.4.4, details for the measurement of a 500 mm opening have been included;

g) in subclause 4.2.7.1, a new sentence referring to subclause 4.2.7.2 has been included;

h) Figure 13 has been amended to show the direction of travel;

i) in subclause 4.2.8.1, a cross reference to Table 2 has been included;

j) Table 2 has been amended to clarify the differences between climbing and hanging fall heights;

k) Figure 14 has been amended to include two types of net structures in fall height examples;

l) subclause 4.2.8.2.5 for the clarification of overlapping falling spaces has been included;

m) subclause 4.2.8.5.2 and Table 4 have been revised to align them with changes to EN 1177;

n) subclause 4.2.9.5 has been completely revised to specify requirements for easily accessible equipment;

o) in subclause 4.2.12.2, a reference for the use of probe E has been included;

p) subclause 4.2.16 giving requirements for bouncing facilities has been included;

q) subclause 5.2 and Annex H relating to impact attenuating surfacing have been included;

r) subclause 6.2 has been amended to give further information on impact attenuating surfacing;

s) in A.2.2, notes 1 and 2 have now been included as part of the requirements;

t) in D.4.2, the last paragraph now includes an additional test requirement for openings behind openings;

u) in D.5, a new test and a new Figure (D.13) for testing chain openings have been included;

v) a new Figure (D.12) has been included showing the application of finger probes in test situations;

w) in subclause D.6, a new test for bouncing facilities has been included;

x) new Annex F “Illustrations of calculation of free height of fall (FHF)” has been included showing illustrations of free height of fall;

y) new Annex G “Illustration of sieve test” has been included showing the illustration of sieve test results and the sieve curve;

z) Annex I “A-deviations” has been updated;

aa) National Annex NA “Procedure for confirming the adequate level of impact attenuation after installation of impact attenuating surfacing” has been included to take the place of new Annex H;

bb) parts of the standards series EN 1176 have been linguistically adapted to each other;

cc) the standard has been editorially brought in line with the current rules of presentation.

**Previous editions**

DIN 7926-1: 1976-12, 1981-05, 1985-08
Supplement 1 to DIN 7926-1: 1987-05
DIN EN 1176-1: 1998-09, 2003-07, 2008-08
DIN EN 1176-1/A1: 2002-07
DIN EN 1177: 1997-11, 2002-03
DIN EN 1176-1 Corrigendum 1:2008-10
DIN EN 1176-1 Corrigendum 2:2008-12

# National Annex NA
(informative)

# Confirming the adequate level of impact attenuation after installation of impact attenuating surfacing

NOTE 1 This annex is not intended for fully enclosed play equipment according to EN 1176-10.

Prior to use by the public, the adequate level of impact attenuation should be identified and confirmed:

a) the overall compliance with the requirements in 4.2.8.5 can, among other things, be checked by visual inspection (e.g. for the materials in Table 4), measurement (e.g. with a folding rule) or by other verification methods (e.g. certificates for synthetic surfacing).

   For synthetic surfacing, the adequate level of impact attenuation can be verified by a HIC test.

   For prefabricated surfacings that are not made in situ, the adequate level of impact attenuation can be verified by a certificate.

b) It shall be confirmed that the native soil inspected has sufficient impact attenuation for the present height of fall (e.g. thickness and material).

   NOTE 2 Where the provided surface is based wholly or partly on naturally occurring soil or grass substrate, the impact attenuating properties will likely vary over time or with climatic conditions. These types of surface are not scientifically controlled; however, long-term experience in handling natural ground shows that no safety-related impairments need to be considered.

c) The result of post installation inspection should be documented, with at least the following being included:

   1) number and date of this European Standard, i.e. EN 1176-1:2017;

   2) place, date and description of the surfacing material and confirmation of the adequate level of impact attenuation;

   3) details on the condition of the impact attenuating surfacing including all defects observed if safety-related.

   4) It is recommended that the surface is given a regular visual inspection to detect visible signs of damage. The frequency of this inspection may need to increase for surfaces subject to heavy use, extreme conditions or if vandalism is likely.

# National Annex NB
(informative)

# Bibliography

DIN 18034, *Playgrounds and outdoor play areas — Requirements on planning, building and operation*

DIN 33942, *Barrier-free accessible playground equipment — Safety requirements and test methods*

DIN SPEC 31081:2013-01, *Playground equipment for children — Replies to requests for interpretation of EN 1176:2008 and its parts (CEN/TR 16396:2012)*

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

# EN 1176-1

October 2017

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Supersedes EN 1176-1:2008

English Version

# Playground equipment and surfacing - Part 1: General safety requirements and test methods

Équipements et sols d'aires de jeux - Partie 1: Exigences de sécurité et méthodes d'essai générales

Spielplatzgeräte und Spielplatzböden - Teil 1: Allgemeine sicherheitstechnische Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 8 June 2017.

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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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## European foreword

This document (EN 1176-1:2017) 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 1176-1:2008.

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 be read in conjunction with:

— EN 1177, *Impact attenuating playground surfacing — Determination of critical fall height*;

— CEN/TR 16467:2013, *Playground equipment accessible for all children*;

— CEN/TR 16598:2014, *Collection of rationales for* EN 1176;

— CEN/TR 16396:2012, *Playground equipment for children, replies to requests for interpretation of* EN 1176:2008 *and its parts*;

— CEN/TR 16879:2016, *Siting of playground and other recreational facilities — Advice on methods for positioning and separation*.

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

The main changes from the previous edition of this standard are as follows:

a) Reference to CEN/TR 16467:2013, CEN/TR 16598:2014, CEN/TR 16396:2012, CEN/TR 16879:2016 added;

b) Scope amended to include reference to 'permanently installed' also reference to electricity, water and UV added;

c) Clause 3.25 definition of easily accessible improved;

d) New definitions added for impact attenuating surfacing, adequate level of impact attenuation, forced movement, bouncing facilities, suspension bed, one post equipment, post installation inspection, fireman's pole and tunnel;

e) Clause 4.2.4.1 amended to agree with Figure 8;

f) Clause 4.2.4.3 and 4.2.4.4 detail of measurement of 500 mm opening added;

g) Clause 4.2.7.1 new sentence adding reference to Clause 4.2.7.2;

h) Figure 13 amended to show direction of travel;

i) Clause 4.2.8.1 cross reference to Table 2 added;

j) Table 2 amended to clarify distinctions for climbing and hanging fall heights;

k) Figure 14 amended to include two types of net structure in fall height examples;

l) Clause 4.2.8.2.5 clarification of overlapping falling spaces added;

m) Clause 4.2.8.5.2 and Table 4 revised to align with changes to EN 1177;

n) Clause 4.2.9.5 major rewrite to clarify requirements for easily accessible equipment;

o) Clause 4.2.12.2 inclusion of reference to use of probe E;

p) New Clause 4.2.16 giving requirements for bouncing facilities;

q) Clauses 5.2 and Annex H relating to Impact Attenuating Surfacing added;

r) Clauses 6.2 amended to give more information on Impact Attenuating Surfacing;

s) A.2.2, notes 1 and 2 now included as part of requirements;

t) D.4.2, last paragraph now includes additional test requirement for holes behind holes;

u) New test (D.5) and Figure (D.13) for testing chain openings added;

v) New Figure (D.12) showing application of finger probes in test situations;

w) New test (D.6) for bouncing facilities;

x) New Annex F showing illustrations of free height of fall;

y) New Annex G showing illustration of sieve test results and sieve curve;