

Prüfbericht-Nr.: <i>Test report no.:</i>	CN255EQ7 001	Auftrags-Nr.: <i>Order no.:</i>	302105882	Seite 1 von 68 Page 1 of 68
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2025.09.16	
Auftraggeber: <i>Client:</i>	Wenzhou Jiqi Amusement Equipment Co., Ltd. Xiaojing Industrial Zone, Qiaoxia Town, Yongjia County, 325102, Zhejiang, P.R. China			
Prüfgegenstand: <i>Test item:</i>	Combination Playground Equipment (Outdoor playground)			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	JQ001			
Auftrags-Inhalt: <i>Order content:</i>	AK certificate			
Prüfgrundlage: <i>Test specification:</i>	EN 1176-1:2017+A1:2023; EN 1176-3:2017 EN 1176-1:2017+A1:2023 Playground equipment and surfacing - Part 1: General safety requirements and test methods EN 1176-3:2017 Playground equipment and surfacing - Part 3: Additional specific safety requirements and test methods for slides <i>Details see Other</i>			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2025.08.27			
Prüfmuster-Nr.: <i>Test sample no.:</i>	302105882-A001			
Prüfzeitraum: <i>Testing period:</i>	2025.08.27 - 2025.09.25			
Ort der Prüfung: <i>Place of testing:</i>	See Other			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland/CCIC (Fujian) Co.,Ltd. Xiamen Branch			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>		2025. 09. 25 15:12:15 +08' 00'	genehmigt von: <i>authorized by:</i>	
Datum: <i>Date:</i>			Ausstellungsdatum: <i>Issue date:</i>	2025.09.25 15:17:27 +08'00'
Stellung / Position:	Kyrie Ye / PE		Stellung / Position:	Dora Long / Authorizer
Sonstiges / <i>Other:</i>	1. Place of testing: Jilongyu, Qiaoxia Town, Yongjia County, Wenzhou City, Zhejiang Province, China 2. As requested by client only specific test requirements, other details see page 3.			
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>			
* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
* Legend:	P(ass) = passed a.m. test specification(s)	F(ail) = failed a.m. test specification(s)	N/A = not applicable	N/T = not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

Prüfbericht-Nr.: CN255EQ7 001

Test report no.:

Seite 2 von 68

Page 2 of 68

Anmerkungen

Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. <i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i>
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3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. <i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i> <i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i>
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. <i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i>

Prüfbericht-Nr.: CN255EQ7 001
Test report no.:

Seite 3 von 68
Page 3 of 68

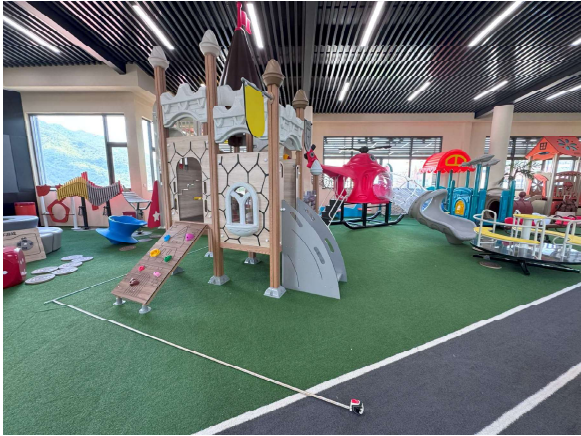
Produktbeschreibung
Product description

1	Produktdetails <i>Product details</i>	Product: Combination Playground Equipment (Outdoor playground) Type: JQ001 Age group: 3-14 years old, Capacity: 8 users (Claimed by client)
2	Maße / Gewicht <i>Dimensions / Weight</i>	4950mm x 2675mm x 4580mm / approx. 400kg (Claimed by client)
3	Bedienelemente <i>Operating elements</i>	N/A
4	Ausstattung / Zubehör <i>Equipment / Accessories</i>	N/A
5	Verwendete Materialien <i>Used materials</i>	Metal, plastic and etc.
6	Sonstiges <i>Other</i>	Test sample(s), as well sample information, description, product details and intended usage was provided by customer. As requested by client, test according to EN 1176-1:2017+A1:2023 without cl.4.1, cl.4.2.8.5, cl. 4.2.11, cl. 4.2.14, cl.5.2, cl.6, cl.7 and EN 1176-3:2017 without cl.4.8, cl.6.
7	Prüfmusterbereitstellung: <i>Test sample obtaining</i>	☐ Sending by customer ☐ Sampling by TÜV Rheinland Group ☒ Others: On-site testing

Prüfbericht-Nr.: CN255EQ7 001
 Test report no.:

Seite 4 von 68
 Page 4 of 68

Produktbeschreibung
 Product description

Sample 	Sample 
Sample 	Sample 

Prüfbericht-Nr.: CN255EQ7 001

Seite 5 von 68

Test report no.:

Page 5 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
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EN 1176-1:2017+
A1:2023

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

1 Scope

This part of EN 1176 specifies general safety requirements for permanently installed public playground equipment and surfacing. Additional safety requirements for specific pieces of playground equipment are specified in subsequent parts of this standard.

This part of EN 1176 covers playground equipment for all children. It has been prepared with full recognition of the need for supervision of young children and of less able or less competent children.

The purpose of this part of EN 1176 is to ensure a proper level of safety when playing in, on or around playground equipment, and at the same time to promote activities and features known to benefit children because they provide valuable experiences that will enable them to cope with situations outside the playground.

This part of EN 1176 is applicable to playground equipment intended for individual and collective use by children. It is also applicable to equipment and units installed as children's playground equipment although they are not manufactured as such, but exclude those items defined as toys in EN 71 and the Toys Safety Directive.

It is not applicable to adventure playgrounds with the exception of those items which have been commercially sourced.

NOTE Adventure playgrounds are fenced, secured playgrounds, run and staffed in accordance with the widely accepted principles that encourage children's development and often use self-built equipment.

This part of EN 1176 specifies the requirements that will protect the child from hazards that they might be unable to foresee when using the equipment as intended, or in a manner that can be reasonably anticipated.

The use of electricity in play equipment, either as a play activity or as a motive force, is outside the scope of this standard. The attention of users is drawn to European and local national standards and regulations which are to be complied with when using electricity.

Play equipment placed in water and where water can be seen as impact attenuating surfacing is not fully covered by this standard and additional risks are associated with wet environments.

The risk of exposure to excessive levels of UV radiation is not covered in this standard.

2 Normative references

See details in EN 1176-1:2017 clause 2.

3 Terms and definitions

See details in EN 1176-1:2017 clause 3.

Prüfbericht-Nr.: CN255EQ7 001

Seite 6 von 68

Test report no.:

Page 6 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4	Safety requirements		
4.1	Materials		
4.1.1	General		
	Materials shall conform to 4.1.2 to 4.1.6. Materials shall be selected and protected such that the structural integrity of the equipment or impact attenuating surfacing manufactured from them is not affected before the next relevant inspection and maintenance. NOTE EN 1176-7 gives recommendations on inspections and maintenance. The provisions relating to certain materials in this standard do not imply that other equivalent materials are unsuitable in the manufacture of playground equipment. The selection of materials and their use should be in accordance with appropriate European Standards. Special attention should be given to surface coatings to avoid potential toxic hazards. The choice of materials should be appropriate where extreme climatic or atmospheric conditions are to be expected. Care should be taken where direct skin contact is to be expected. In the choice of a material or substance for playground equipment or impact attenuating surfacing, consideration should be given to the eventual disposal of the material or substance having regard to any possible environmental toxic hazard.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒
4.1.2	Flammability		
	To avoid the risk of fire and associated hazards, materials known to produce surface flash shall not be used. Particular attention should be given to newly developed products whose properties might not be fully known. NOTE 1 Requirements for adequate exits to ensure escape in cases of fire are given in 4.2.3. NOTE 2 Attention is drawn to national and local building regulations regarding flammability for equipment installed both indoors and outdoors.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒

Prüfbericht-Nr.: CN255EQ7 001

Seite 7 von 68

Test report no.:

Page 7 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.1.3	Timber and associated products		
	Timber parts shall be designed in such a way that precipitation can drain off freely and water accumulation shall be avoided. In cases of ground contact, one or more of the following methods shall be used: a) use of timber species with sufficient natural resistance in accordance with classes 1 and 2 of the natural resistance classification given in EN 350: 2016, 5.2; b) construction methods, e.g. post shoe; c) use of timber treated with wood preservatives in accordance with EN 351-1: 2007, Figure A.1, and in accordance with EN 335, use class 4. NOTE It is advised to also consider other factors which can be unsuitable, such as splintering, poisoning etc. All components made of timber and associated products, other than those species conforming to a), that affect the stability of the structure and are in constant contact with the ground shall be treated in accordance with c). When selecting metal fastenings, consideration should be given to the species of timber and chemical treatments used as some will accelerate corrosion of metals if there is contact between them. Plywood shall be in accordance with EN 636 and shall be weatherproofed.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒
4.1.4	Metals		
	Metal parts should be protected against atmospheric conditions and cathodic corrosion. Metals that produce toxic oxides that scale or flake shall be protected by a non-toxic coating.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒

Prüfbericht-Nr.: CN255EQ7 001

Seite 8 von 68

Test report no.:

Page 8 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.1.5	Synthetics		
	If, during maintenance, it is difficult to determine at what point material becomes brittle, manufacturers shall give an indication of the time period after which the part or equipment or impact attenuating surfacing should be replaced. It should be possible for the operator of the playground to visually identify excessive wear of the gelcoat of GRP (glass-reinforced plastics) products intended for sliding before the user becomes exposed to the glass fibres. NOTE This can be achieved for example by the use of different coloured layers in the sliding surface. Consideration should also be given to degradation of structural components or impact attenuating surfacing through ultraviolet influences.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒
4.1.6	Dangerous substances		
	Dangerous substances shall not be used in playground equipment or impact attenuating surfacing in such a way that they can cause adverse health effects to the user of the equipment. NOTE Attention is drawn to the provisions of the REACH Regulation (EC) 1907/2006 and its successive modifications. Restricted materials include, but are not limited to, asbestos, lead, formaldehyde, coal tar oils, carbolineums, polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAH compounds).	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒
4.2	Design and manufacture		
4.2.1	General		
	Equipment where the primary play function is augmented by a secondary motion, e.g. rocking and/or rotating, shall conform to the additional parts of EN 1176 relating to both play functions, as appropriate, unless the equipment is specifically covered in just one of the additional parts of EN 1176. The dimensions and degree of difficulty of the equipment should be suitable for the intended user group. The equipment should be designed so that the risk involved in play is apparent and foreseeable by the child.	Comply.	P ☒ F ☐ N/A ☐ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 9 von 68

Test report no.:

Page 9 of 68

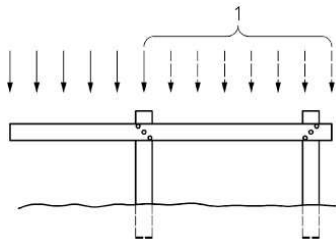
Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
	NOTE For additional safety of equipment that is easily accessible, specific requirements have been included for the following: — protection against falling: a) guardrails (4.2.4.3); b) barriers (4.2.4.4); — steep elements (4.2.9.4); — easily accessible playground equipment (4.2.9.5). Except when intended for water play, all parts of playground equipment should be designed so that they do not accumulate water e.g. space beneath bouncing facility or carousel flush with the ground.	Not intended for water play.	P ☒ F ☐ N/A ☐ N/T ☐
4.2.2	Structural integrity		
	For playground equipment, the structural integrity for the worst case of the intended combinations shall be proved. Structural integrity, including stability of the equipment shall be assessed by one of the following: a) calculation, in accordance with Annexes A and B; b) physical testing, in accordance with Annex C; or c) a combination of a) and b) When calculations are carried out in accordance with Annex B no limit states shall be exceeded at combinations of loads as given in B.2. When tested in accordance with Annex C, the equipment shall not show any cracks, damage or excessive permanent deformation (see C.1.2). Each structure shall resist both the permanent and variable loads acting on equipment and parts of equipment as described in Annex C. When playground equipment relies on one post for its stability, the construction should be carried out in order to: — minimize rotting or corrosion in parts relevant for stability; — allow for controlling degradation and the need for decommission; — be used without collapse within the foreseen inspection period when maintained correctly.	Test conducted according to the calculated capacity on the main equipment. Total users: 21 Total vertical load: 602N*21*1.35=17067N After test, no damage was found.	P ☒ F ☐ N/A ☐ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 10 von 68

Test report no.:

Page 10 of 68

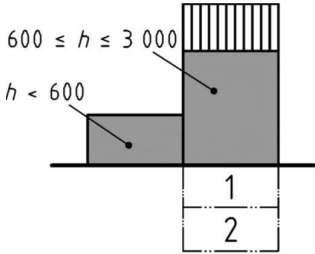
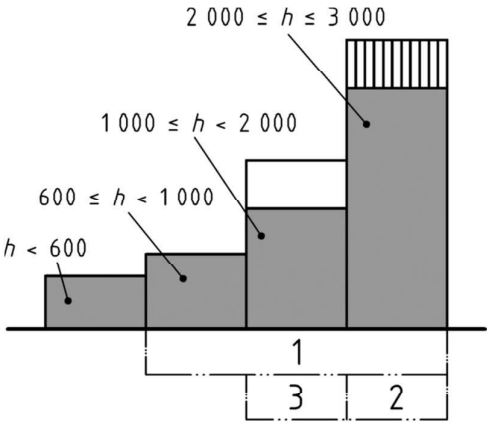
Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
	NOTE 1 No allowance for accidental loads, i.e. loads produced by fire, collision by vehicles or earthquake, need to be made for playground equipment. NOTE 2 The loads associated with fatigue are in general much smaller than the loads in combination with the appropriate load factors when calculated in accordance with B.2. Therefore, playground equipment in general need not be verified for fatigue. NOTE 3 For one post equipment at installation stage, it is advised to consider access to foundations to control rotting or degradation; the choice of impact attenuating surfacing material can have implications on inspections to foundations. Structural parts shall resist the worst case loading condition. NOTE 4 To achieve this, it might be necessary to remove that part of the user load causing favourable effects, as shown in Figure 7.	See above.	P ☒ F ☐ N/A ☐ N/T ☐
	 Key 1 remove this part of the load because of favourable effects Figure 7 — Example of removal of that part of the user load which causes a favourable effect		
4.2.3	Accessibility for adults		
	Playground equipment shall be designed to ensure that adults are able to gain access to assist children within the equipment. Enclosed parts of the equipment such as tunnels and playhouses, with an internal distance greater than 2 000 mm from an entry point shall have at least two access openings that are independent of one another and situated on different sides of the equipment. These openings shall not be capable of being locked and shall be accessible without any additional aids (e.g. a ladder that is not an integral part of the equipment). These access openings shall have no dimension less than 500 mm. Because of the risk of fire, these two openings shall allow the user to leave the equipment by different routes.	Comply.	P ☒ F ☐ N/A ☐ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 11 von 68

Test report no.:

Page 11 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements - Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.2.4	Protection against falling		
4.2.4.1	General		
	Different types of protection against falling from elevated platforms are required. The type of protection required will depend on the free height of fall and on the type of equipment, whether it is easily accessible or not (see 4.2.4.3 and 4.2.4.4). See Figure 8 and Annex F. When installed on ramps or stairs, handrails, guardrails or barriers shall commence at the lowest position on the ramp or stairs.	Max. fall height: 845mm.	P ☒ F ☐ N/A ☐ N/T ☐
	Dimensions in millimetres  a) Protection against falling for easily accessible equipment  b) Protection against falling for not easily accessible equipment Key 1 impact attenuating surfacing in accordance with 4.2.8.5 2 barriers required 3 guardrail required Figure 8 — General protection against falling where there is no forced movement		
4.2.4.2	Handrails		
	Handrails shall be not less than 600 mm and not more than 850 mm above the foot position (see Figure 9). As a minimum, handrails shall conform to the requirements for grasp (see 4.2.4.7).	Comply.	P ☒ F ☐ N/A ☐ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

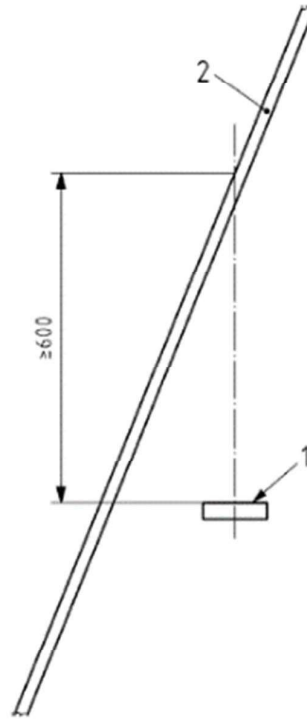
Seite 12 von 68

Test report no.:

Page 12 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
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Dimensions in millimetres



Key
1 foot position
2 handrail

Figure 9 — Guidance on measurement of height of handrail above foot position

4.2.4.3 Guardrails

For equipment other than that which is easily accessible, guardrails shall be provided when the platform is 1 000 mm to 2 000 mm above the playing surface (see Figure 8b)). The height to the top of the guardrail shall be not less than 600 mm and not more than 850 mm measured from the surface of the platform, stairs or ramp.

Guardrails shall completely surround the platform except for entrance and exit openings necessary for each play element. The width of entrance and exit openings in guardrails, with the exception of stairs, ramps and bridges, shall have a maximum clear opening of 500 mm, when measured horizontally at a position, with a height between 600 mm to 850 mm from the platform. For stairs, ramps and bridges the width of the exit opening in the guardrail shall be no greater than the width of these elements.

No such design.

P ☐
F ☐
N/A ☒
N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 13 von 68

Test report no.:

Page 13 of 68

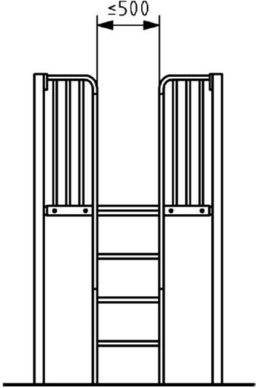
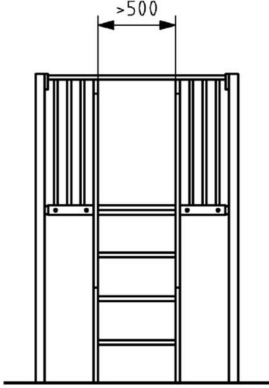
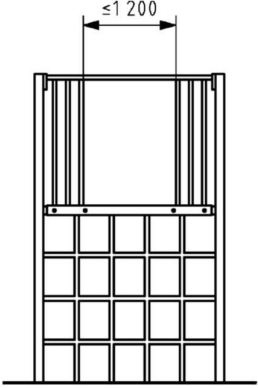
Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.2.4.4	Barriers		
	Except for entrance and exit openings necessary for each play element, barriers shall completely surround the platform. The width of entrance and exit openings in barriers shall have a clear opening of 500 mm maximum, when measured horizontally at any point (see Figure 10a)), unless a guardrail is provided across the opening (see Figure 10b) and Figure 10c)). For stairs, ramps, bridges, etc. that have additional barriers as part of their structure, the width of the exit opening in the barrier shall be no greater than the width of these elements. There shall be no intermediate horizontal or near horizontal rails or bars that can be used as steps by children attempting to climb. The design of the top of the barriers should not encourage children to stand or sit on them, nor should any infilling encourage climbing. Openings between the platform surface and the lower edge of the barrier and between any infilling elements shall not allow passage of the probe C. For easily accessible equipment, barriers shall be provided when the platform is more than 600 mm above the playing surface (see Figure 8a)). For equipment other than easily accessible, barriers shall be provided when the platform is more than 2 000 mm above the playing surface (see Figure 8b)). The height to the top of the barrier shall be at least 700 mm measured from the surface of the platform, stairs or ramp. Openings in the barrier of easily accessible equipment/parts of equipment that give access to steep play elements shall conform to the requirements of 4.2.9.4. For all other equipment, openings in the barrier provided with a guardrail, which give access to steep play elements, shall not be greater than 1 200 mm (see Figure 10c)).	Comply.	P ☒ F ☐ N/A ☐ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 14 von 68

Test report no.:

Page 14 of 68

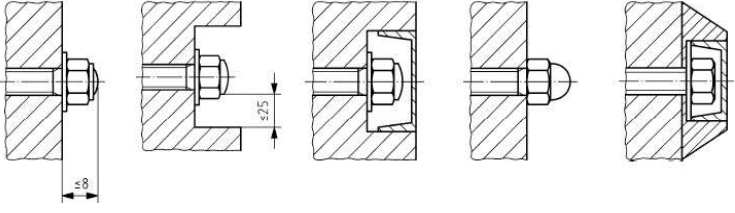
Absatz Clause	Anforderungen - Prüfungen / Requirements - Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
	Dimensions in millimetres  a) any narrow element  b) steep play element is at least as wide as the opening  c) steep play element is wider than the opening Figure 10 — Entrance and exit openings in barriers for steep play elements		
4.2.4.5	Strength requirements		
	Barriers and guardrails shall conform to 4.2.2.	Comply.	P ☒ F ☐ N/A ☐ N/T ☐
4.2.4.6	Grip requirements		
	The cross-section of any support designed to be gripped for support of full body weight (see 3.16 and Figure 5) shall have a dimension of not less than 16 mm or more than 45 mm in any direction, when measured across its centre.	Not applicable.	P ☐ F ☐ N/A ☒ N/T ☐
4.2.4.7	Grasp requirements		
	The cross-section of any support designed to be grasped (see 3.17 and Figure 6) shall have a width not exceeding 60 mm.	Comply.	P ☒ F ☐ N/A ☐ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 15 von 68

Test report no.:

Page 15 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.2.5	Finish of equipment		
	Wooden equipment shall be made of wood with a low susceptibility to splintering. The surface finish of equipment made of other materials (e.g. glass fibre) shall be non-splintering. There shall be no protruding nails, projecting wire rope terminations or pointed or sharp-edged components. Rough surfaces should not present any risk of injury. Protruding bolt threads within any accessible part of the equipment shall be permanently covered, e.g. dome headed nuts. Nuts and bolt heads that project less than 8 mm shall be free from burrs. NOTE 1 Figure 11 shows examples of protection for nuts and bolts. Corners, edges and projecting parts within the space occupied by the user that protrude more than 8 mm, and which are not shielded by adjacent areas that are not more than 25 mm from the end of the projecting part, shall be rounded off. The minimum radius of the curve shall be 3 mm. NOTE 2 This requirement is intended only to prevent injuries caused by unintended contact with components. Corners, edges and projections with a radius less than 3 mm may be in other accessible parts of the equipment only if they are not sharp.	Comply.	P ☒ F ☐ N/A ☐ N/T ☐
	Dimensions in millimetres  Figure 11 — Examples of protection for nuts and bolts		
4.2.6	Moving parts		
	There shall be no crushing points or shearing points between moving and/or stationary parts of the equipment, in accordance with 4.2.7. Parts from which a high impact force can emanate should have an attenuating construction. If moving parts of the equipment can endanger the body, there shall be a ground clearance of at least 400 mm.	Comply.	P ☒ F ☐ N/A ☐ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 16 von 68

Test report no.:

Page 16 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.2.7	Protection against entrapment		
4.2.7.1	General		
	When choosing materials, the manufacturer should take into account the entrapment hazards that can occur through distortion of materials during use. NOTE 1 Test methods for entrapment are given in Annex D. NOTE 2 Possible entrapment situations are illustrated in Annex E. Openings shall have no parts that converge in the downward direction at an angle of less than 60° taking into consideration the following conditions (4.2.7.2).	Comply.	P ☒ F ☐ N/A ☐ N/T ☐
4.2.7.2	Entrapment of the head and neck		
	Equipment shall be constructed so that any openings do not create head and neck entrapment hazards either by head first or feet first passage. Hazardous situations in which this type of entrapment can be encountered include the following: — completely bound openings through which a user can slide feet first or head first; — partially bound or V-shaped openings; — other openings (e.g. shearing or moving openings). a) Completely bound openings: Accessible completely bound openings with a lower edge more than 600 mm above the playing surface (see 3.5) shall be tested in accordance with D.2.1. Probes C or E shall not pass through any opening unless it also allows the passage of the large head probe D. NOTE 1 Probe C represents a 'feet first' passage to an opening and probe E represents a 'head first' passage.	No such hazard.	P ☒ F ☐ N/A ☐ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 17 von 68

Test report no.:

Page 17 of 68

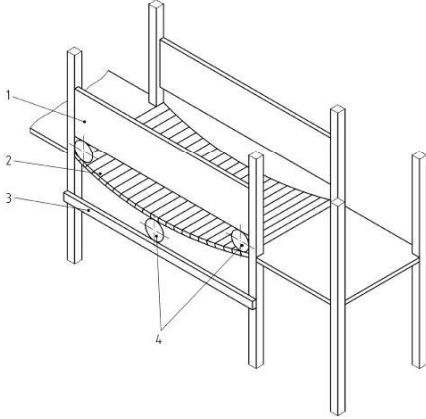
Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
	b) Partially bound and V-shaped openings: Partially bound and V-shaped openings with an entrance at 600 mm or more above the ground shall be constructed so that either: 1) opening is not accessible when tested in accordance with D.2.2; or 2) if accessible at a position of 600 mm or more above ground when tested in accordance with D.2.2, depending on the angular orientation range of the opening (see Figure D.4), shall conform to the following: — Range 1: (template centre line $\pm 45^\circ$ from vertical); when the template apex contacts the base of the opening, the depth of the opening shall be less than the length of the template to the underside of the shoulder section. — Range 2: (template centre line from horizontal to $+ 45^\circ$); when the template apex contacts the base of the opening, the depth of the opening shall be less than the 'A' portion of the template. If the depth of the opening is greater than the 'A' portion of the template all parts of the opening above the 'A' portion shall also allow insertion of the shoulder section of the template or probe D. — Range 3: No template test requirements. c) Other openings (e.g. shearing or moving openings): Non-rigid members (for example ropes) shall not overlap if, by doing so, they create openings that do not conform to the requirements for completely bound openings. Openings between the flexible parts of suspended bridges and any rigid side members shall be not less than 230 mm in diameter under the worst case condition of loading (see 4.2.2). Both loaded and unloaded situations shall be considered. NOTE 2 This requirement relates to the potential change in dimensions as a result of the stretching of bridge flexible supports (e.g. wire) over time. A typical suspended bridge is illustrated in Figure 12.	See above.	P ☒ F ☐ N/A ☐ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 18 von 68

Test report no.:

Page 18 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
	 Key 1 rigid side members 2 suspended bridge 3 rigid side members 4 diameter 230 mm minimum Figure 12 — Suspended bridge		
4.2.7.3	Entrapment of clothing/hair		
	Equipment should be constructed so that hazardous situations including the following, in which clothing entrapment can be encountered, are not created: a) gaps or V-shaped openings in which a part of clothing can become trapped while or immediately before the user is undergoing a forced movement; b) protrusions; and c) spindles/rotating parts. NOTE 1 The toggle test (see D.3) is restricted to the free space as practical experience has shown that natural materials and connections between different parts can vary over time. The definition of free space (see 3.5) does not include the three-dimensional area in which the falling movement takes place. Special consideration should be given when using elements of circular cross-section, e.g. round tubes or poles, to avoid clothing entanglement within the falling space. NOTE 2 This can be achieved by use of spacers or similar devices.	No such hazard.	P ☒ F ☐ N/A ☐ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 19 von 68

Test report no.:

Page 19 of 68

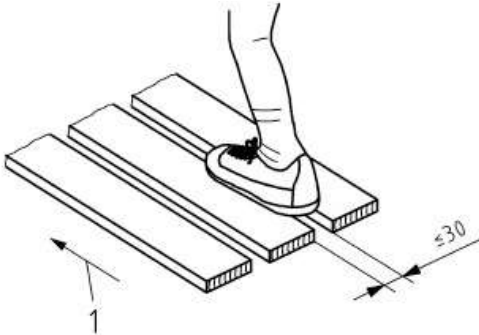
Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result																																										
	Slides and fireman's poles shall be constructed so that openings located within the free space do not trap the toggle when tested in accordance with D.3. Roofs shall be constructed so that they do not trap the toggle when tested in accordance with D.3. Spindles and rotating parts shall be constructed so as to prevent entanglement of clothing or hair. NOTE 3 This can be achieved by use of suitable covering or shields.	See above.	P ☒ F ☐ N/A ☐ N/T ☐																																										
4.2.7.4	Entrapment of the whole body																																												
	Equipment should be constructed so that the following hazardous situations, which might cause entrapment, are not created: a) tunnels into which children can crawl with their whole body; and b) suspended parts which are heavy or have rigid suspension. Tunnels shall have a maximum length of 10 000 mm and conform to the requirements given in Table 1.	No such hazard.	P ☒ F ☐ N/A ☐ N/T ☐																																										
	Table 1 — Requirements for tunnels Dimensions in millimetres <table><tr><th>Requirements</th><th>Open one end</th><th colspan="4">Open both ends</th></tr><tr><td>Inclination</td><td>≤ 5° and upwards only when entering</td><td colspan="3">≤ 15°</td><td>> 15°</td></tr><tr><td>Minimum internal dimension ^a</td><td>≥ 750</td><td>≥ 400</td><td>≥ 500</td><td>≥ 750</td><td>≥ 750</td></tr><tr><td>Length</td><td>≤ 2 000</td><td>≤ 1 000</td><td>≤ 2 000</td><td>≤ 10 000</td><td>≤ 10 000</td></tr><tr><td>Other requirements</td><td>None</td><td>None</td><td>None</td><td>None</td><td>Provision for climbing e.g. steps or handles</td></tr><tr><td colspan="6">NOTE For tunnel slides, see EN 1176-3.</td></tr><tr><td colspan="6">^a Measured at the narrowest point.</td></tr></table>			Requirements	Open one end	Open both ends				Inclination	≤ 5° and upwards only when entering	≤ 15°			> 15°	Minimum internal dimension ^a	≥ 750	≥ 400	≥ 500	≥ 750	≥ 750	Length	≤ 2 000	≤ 1 000	≤ 2 000	≤ 10 000	≤ 10 000	Other requirements	None	None	None	None	Provision for climbing e.g. steps or handles	NOTE For tunnel slides, see EN 1176-3.						^a Measured at the narrowest point.					
Requirements	Open one end	Open both ends																																											
Inclination	≤ 5° and upwards only when entering	≤ 15°			> 15°																																								
Minimum internal dimension ^a	≥ 750	≥ 400	≥ 500	≥ 750	≥ 750																																								
Length	≤ 2 000	≤ 1 000	≤ 2 000	≤ 10 000	≤ 10 000																																								
Other requirements	None	None	None	None	Provision for climbing e.g. steps or handles																																								
NOTE For tunnel slides, see EN 1176-3.																																													
^a Measured at the narrowest point.																																													

Prüfbericht-Nr.: CN255EQ7 001

Seite 20 von 68

Test report no.:

Page 20 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.2.7.5	Entrapment of the foot or leg		
	Equipment should be constructed so that the following hazardous situations, which might cause entrapment, are not created: a) completely bound rigid openings in surfaces on which children can run or climb; and b) footholds, handholds, etc. extending from these surfaces. NOTE In the case of b) the entrapped foot or ankle can be severely injured if the user falls. Surfaces intended for running/walking shall not contain gaps likely to cause foot or leg entrapment. Gaps in the main direction of travel shall not be greater than 30 mm when measured across the direction of travel (see Figure 13). This requirement does not apply to surfaces inclined more than 38° from the horizontal.	No such hazard.	P ☒ F ☐ N/A ☐ N/T ☐
	Dimensions in millimetres  Key 1 direction of travel Figure 13 — Measurement of gaps limited to 30 mm		
4.2.7.6	Entrapment of fingers		
	Equipment should be constructed so that the following hazardous situations, which may cause entrapment, are not created: a) gaps in which fingers can be trapped whilst the remainder of the body is moving or continues in forced movement, for example sliding, swinging; and b) variable gaps(excluding chains).	No such hazard.	P ☒ F ☐ N/A ☐ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 21 von 68

Test report no.:

Page 21 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements - Tests	Messergebnisse - Bemerkungen/ Measuring results - Remarks	Ergebnis Result
	Openings within the free space, where the user is subjected to forced movement, and/or holes which have a lower edge more than 1 000 mm above the potential impact area, when tested in accordance with D.4, shall conform to one of the following requirements: NOTE 1 Openings include tubes and pipes. c) the 8 mm finger rod (see Figure D.10a)) shall not pass through the minimum cross-section of the opening and the profile of the opening shall be such that the rod cannot be locked in any position when set in motion as given in D.4.2; or d) if the 8 mm finger rod passes through the opening, the 25 mm finger rod (see Figure D.10b)) shall also pass through the opening, provided that the opening does not permit access to another finger entrapment site. NOTE 2 Only to be used where there is a potential fall to an impact area below. See also adjacent platforms (4.2.8.5.4). NOTE 3 The test process D.4.2 for finger entrapment will only be conducted with the presence of free space and/or falling space. The ends of tubes and pipes shall be closed off to prevent the risk of finger entrapment. The closures shall not be removable without using tools. Gaps whose dimensions change during use of the equipment shall have a minimum dimension in any position of 12 mm. Splits in single pieces of wood shall not be considered as finger entrapment where the gap diminishes towards the centre of the wooden part.	See above.	P ☒ F ☐ N/A ☐ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 22 von 68

Test report no.:

Page 22 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
------------------	---	---	--------------------

4.2.8 Protection against injuries during movement and falling

4.2.8.1 Determination of free height of fall

Unless stated otherwise, determination of free height of fall shall be as given in Table 2. In determining the free height of fall, the possible movements of the equipment and of the user shall be taken into account. In general, this means that the maximum movement of the equipment shall be taken.

In the case of roofs, or other features not intended for play, it is not required for them to be included in the free height of fall where access has not been encouraged.

EXAMPLE Some examples of features that could encourage access are:

- play feature, which can be accessed from the roof;
- hand and foot holds for climbing;
- arm or leg reach distance;
- inclination of the roof;
- roughness of the roof surface.

The free height of fall (h) shall not exceed 3 000 mm (see Figure 14).

For the determination of free height of fall, see Table 2.

Max. fall height: 845mm.

P ☒
F ☐
N/A ☐
N/T ☐

Table 2 – Free height of fall for different types of use

Type of use	Vertical distance
Standing	From foot support to surface below
Sitting	From seat to surface below
Hanging ^a (When full body support is provided by the hands only and the whole body can be lifted up to the hand support)	From hand support height to surface below
Climbing ^a (When body support is a combination of feet/legs and hands, e.g. climbing ropes or sliding/climbing poles)	Maximum hand support: 4 000 mm to the surface below (free height of fall measured from maximum hand support minus 1 000 mm to the surface below)
Bouncing	From suspension bed to the lowest point of falling space plus 900 mm
^a Such equipment constructed for use as 'climbing' or 'hanging' shall not encourage access to positions for full body support with a free height of fall of more than 3 000 mm e.g. horizontal net (climbing), horizontal ladder intended for arm walking (hanging).	

Prüfbericht-Nr.: CN255EQ7 001

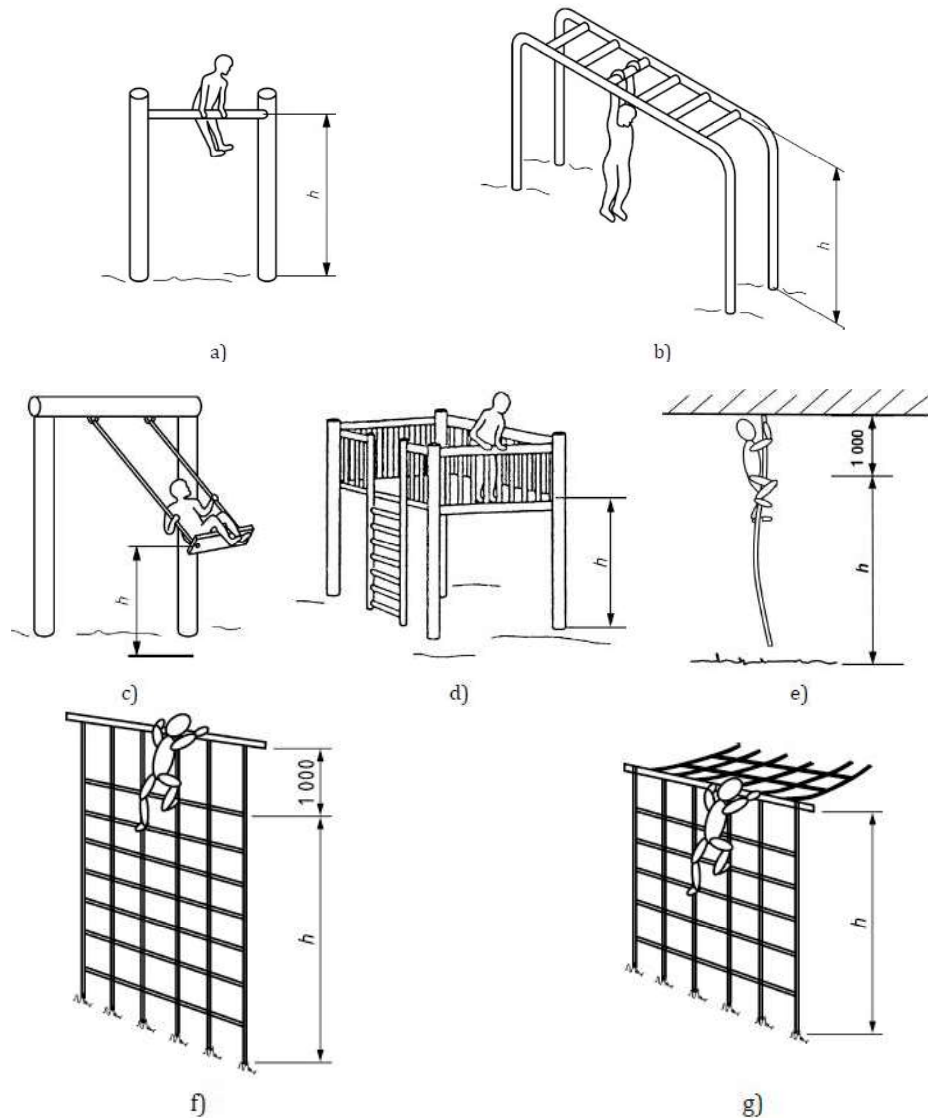
Seite 23 von 68

Test report no.:

Page 23 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements - Tests	Messergebnisse - Bemerkungen/ Measuring results - Remarks	Ergebnis Result
------------------	---	---	--------------------

Dimensions in millimetres



Key
 h free height of fall

Figure 14 — Examples showing free height of fall

Prüfbericht-Nr.: CN255EQ7 001

Seite 24 von 68

Test report no.:

Page 24 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.2.8.2	Determination of spaces and areas		
4.2.8.2.1	General		
	The requirements for falling space and impact area within this standard are intended to offer some protection to users during the first impact of a potential fall. These spaces and areas will also afford some protection to other users who might be circulating around the equipment items, but these requirements should be considered in addition to this standard as they are likely to be site specific and may be subject to national control. In particular the attention of the play area designer is directed to possible hazards associated with the close proximity of play structures intended for users of greatly different age groups and those in highly populated play areas such as those found in some schools. Care should be taken with seated dynamic equipment with significant motion, e.g. swings and certain types of rocking equipment, to discourage users of the surrounding play area from unintentionally coming into contact with the equipment. This can be achieved, for example, by placing the equipment at the perimeter of the play area.	Comply.	P ☒ F ☐ N/A ☐ N/T ☐
4.2.8.2.2	Minimum space		
	The minimum space shall consist of the following: a) space occupied by the equipment; b) free space, if any; and c) falling space.	Comply.	P ☒ F ☐ N/A ☐ N/T ☐
4.2.8.2.3	Free space		
	The free space is a series of cylindrical spaces representing the user (see Figure 15), originating from and perpendicular to the body bearing surface, along the forced path of the user. The cylindrical space is shown in Figure 16 and its dimensions are given in Table 3. In determining the free space, the possible movements of the equipment and the user shall be taken into account. Fireman's poles that are accessed via a platform or other starting point shall have a clearance of at least 350 mm from the pole to the edge of the adjacent structure. NOTE 1 This is to allow safe grabbing of the pole while reducing the risk of head impact on the adjacent structure.	Comply.	P ☒ F ☐ N/A ☐ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 25 von 68

Test report no.:

Page 25 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements - Tests	Messergebnisse - Bemerkungen/ Measuring results - Remarks	Ergebnis Result
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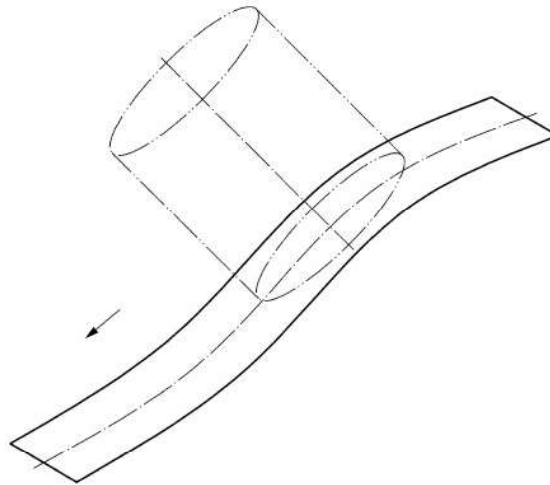
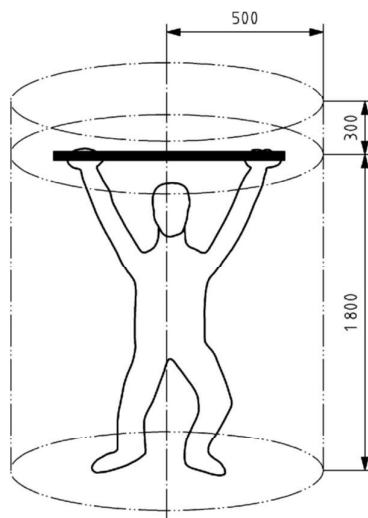
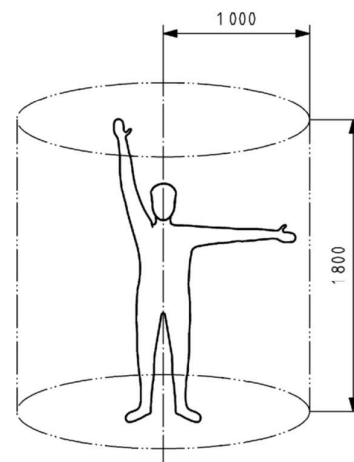


Figure 15 — Determination of the free space; example of a slide

Dimensions in millimetres



a) Hanging user



b) Standing user

Figure 16 — Cylindrical space

Prüfbericht-Nr.: CN255EQ7 001

Seite 26 von 68

Test report no.:

Page 26 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
------------------	---	---	--------------------

Table 3 — Dimensions of the cylinder for the determination of the free space

Dimensions in millimetres

Type of use	Radius	Height
Standing	1 000	1 800
Sitting	1 000	1 500
Hanging	500	300 above and 1 800 below hanging grip position
NOTE In case of hanging, $h = 300$ mm because of the possibility that the users pull themselves up [see Figure 16a)].		

NOTE 2 In certain cases, the dimensions of the free space can be altered. In some cases, these will be given in the parts of this standard covering individual types of equipment.

4.2.8.2.4 Extent of the impact area

Dimensions of the impact area are shown in Figure 17.

In certain cases, such as a carousel giving the user a horizontal speed, the impact area may be extended to provide adequate protection against falling injuries.

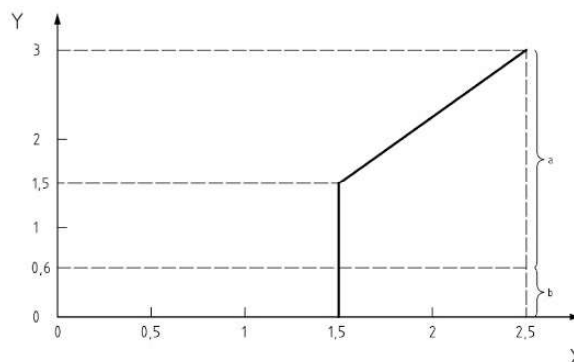
In determining the impact area, the possible movements of the equipment and the user shall be taken into account.

NOTE These cases are also covered in the parts of this standard covering individual types of equipment

Comply.

P ☒
F ☐
N/A ☐
N/T ☐

Dimensions in metres



Key

Y free height of fall

X minimum dimension of impact area

a impact attenuating surfacing with requirements (4.2.8.5.2)

b surface with no impact attenuation test requirements, unless there is forced movement(4.2.8.5.3)

If $0 \leq Y \leq 1,5$ then $X = 1,5$ (in metres)

If $Y > 1,5$, then $X = 2/3 Y + 0,5$

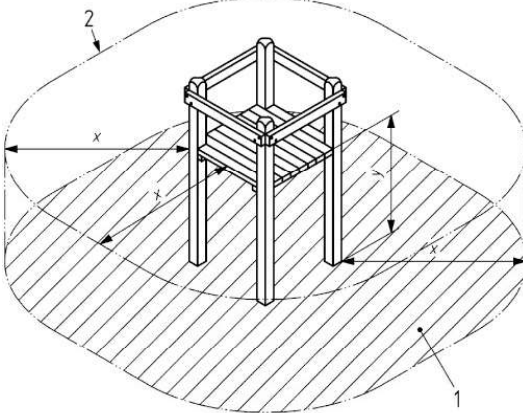
Figure 17 — Extent of the impact area

Prüfbericht-Nr.: CN255EQ7 001

Seite 27 von 68

Test report no.:

Page 27 of 68

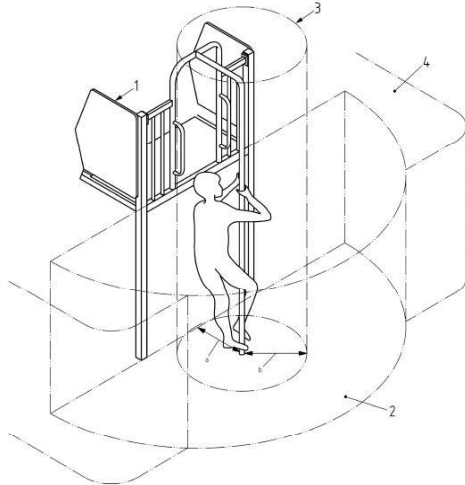
Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.2.8.2.5	Extent of the falling space Unless otherwise specified, the extent of the falling space shall be at least 1 500 mm around elevated parts of the equipment, measured horizontally and extending from the vertical projection plane below the equipment. The falling space shall increase for free heights of fall above 1 500 mm together with the extent of the impact area (see 4.2.8.2.4). This requirement can be varied in certain cases, e.g. increased, in the case of forced movement or reduced, in the case of equipment installed on or against a wall or fully enclosed equipment. In most cases there may be overlapping of falling spaces including impact areas. Unless specified in other parts of this standard, overlapping of the falling space where forced movement exists should not occur. Where two items with different fall heights are sited together the larger of the two impact areas will take precedence. Examples of falling space are given in Figures 18 and 19.	Comply.	P ☒ F ☐ N/A ☐ N/T ☐
	 Key 1 impact area 2 falling space x extent of falling space y height of falling space Figure 18 — Example of falling space and impact area of a platform		

Prüfbericht-Nr.: CN255EQ7 001

Seite 28 von 68

Test report no.:

Page 28 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
	 Key 1 space occupied by the equipment 2 falling space of the fireman's pole 3 free space of the fireman's pole 4 falling space of platform a fireman's pole minimum clearance (see 4.2.8.3) b free space radius (see 4.2.8.2.3) Figure 19 — Example of falling space and free space of a fireman's pole		
4.2.8.3	Protection against injuries in the free space for users undergoing a movement that is forced by the equipment		
	Unless stated otherwise, there shall be no overlapping of adjacent free spaces, or of free space and falling space of two different pieces of equipment. NOTE 1 This requirement does not apply to the common space between pieces of equipment in a cluster. The free space shall not contain any obstacles that interfere with the passage of a user whilst undergoing a forced movement e.g. tree branches, ropes, cross beams etc. Parts of the equipment bearing or containing the user, or helping the user to keep balance, shall be permitted within the free space, e.g. a platform with a fireman's pole (see 4.2.8.2.3). NOTE 2 Exceptions to this requirement are given in the parts of this standard covering individual types of equipment. The free space shall not be intersected by main travelling routes at, or through, the playground (e.g. pedestrian pathway).	No such hazard.	P☒ F☐ N/A☐ N/T☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 29 von 68

Test report no.:

Page 29 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.2.8.4	Protection against injuries in the falling space		
	The falling space shall not contain any obstacles onto which a user could fall and cause injuries, e.g. posts not flush with adjacent parts or exposed foundations (see 4.2.14). NOTE 1 The intention of this requirement is not to protect the user from minor knocks or bumps, that might lead to a bruise or sprain etc., as these types of injuries are possible in all situations. The following parts of play structures may be in the falling space: — adjacent parts of play structures with a difference in free height of fall of less than 600 mm; — parts of the equipment bearing or containing the user, or helping the user to keep balance; — parts of the equipment with an inclination of 60° or more from the horizontal. NOTE 2 In this case a falling user would only make a glancing contact with the equipment part.	Comply.	P ☒ F ☐ N/A ☐ N/T ☐
4.2.8.5	Protection against injuries from the surface of the impact area		
4.2.8.5.1	General		
	The surface of the impact area shall be free from sharp edged parts or projections and shall be installed without creating any entrapment situation (see 4.2.7). If loose particulate material is used it shall be installed to a layer thickness of 100 mm more than that determined in Table 4 or by testing to EN 1177. NOTE This is to allow for displacement of loose particulate material through use.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒

Prüfbericht-Nr.: CN255EQ7 001

Seite 30 von 68

Test report no.:

Page 30 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
------------------	---	---	--------------------

4.2.8.5.2 Equipment with a free height of fall greater than 600 mm or with forced movement

	Beneath all playground equipment with a free height of fall of more than 600 mm and/or equipment causing a forced movement on the body of the user (e.g. swings, slides, rocking equipment, cableways, carousels, etc.), there shall be impact attenuating surfacing over the entire impact area. NOTE 1 Specific requirements for equipment causing a forced movement on the body of the user (e.g. swings, slides, rocking equipment etc.) are covered in other parts of EN 1176. The critical fall height of the surfacing shall be equal to, or greater than, the free height of fall of the equipment. Examples for commonly used impact attenuating materials are given in Table 4 with the related maximum free heights of fall, tested in accordance with EN 1177 and measured partly on site and partly in the laboratory with different test conditions. Where the installed surfacing can be verified as being in accordance with Table 4, no additional testing is required. The extent of the impact area is given in 4.2.8.2.4. NOTE 2 Turf as well as having aesthetic appeal also has some useful impact attenuating properties. Experience has shown that, if well maintained, it is normally effective for fall heights up to 1 m and can be used without the need to conduct a test. For fall heights above 1 m, the performance of turf as an impact attenuating surfacing is dependent upon local climatic conditions. Therefore, as there are significant regional variations in climate throughout Europe it is advised that guidelines are given at a national level. Turf/topsoil is not intended to be tested in accordance with EN 1177. NOTE 3 Impact attenuating materials are tested under specific conditions; therefore the performance of these materials can vary in use (e.g. materials under frozen conditions, rain or extreme heat) – see 6.2 of this standard. Impact attenuating materials should be adequately maintained. Failure to maintain such surfaces will result in the impact attenuation being significantly reduced.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒
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Prüfbericht-Nr.: CN255EQ7 001

Seite 31 von 68

Test report no.:

Page 31 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
------------------	---	---	--------------------

Table 4 — Examples of commonly used impact attenuating materials, depths and corresponding maximum free heights of fall

Material ^a	Description	Minimum depth ^b	Maximum free heights of fall
Where the installed surfacing is verified (e.g. sieve test) as being in accordance with this table or carries a test report according to EN 1177, no additional testing is required	mm	mm	mm
Turf/topsoil	—	—	≤ 1 000 ^d
Bark	20 to 80 particle size	200	≤ 2 000
		300	≤ 3 000
Woodchip	5 to 30 particle size	200	≤ 2 000
		300	≤ 3 000
Sand or gravel ^c	0,25 to 8 grain size	200	≤ 2 000
		300	≤ 3 000
Other materials and other depths	As tested according to EN 1177		Critical fall height as tested
^a For further information on specific material properly prepared for use in children's playgrounds see CEN/TR 16598 (Collection of Rationales for EN 1176–1 requirements).			
^b For loose particulate material, add 100 mm to the minimum depth to compensate for displacement (see 4.2.8.5.1).			
^c Sand and gravel shall be well rounded and washed to eliminate most of the silt or clay particles. Washed sand or gravel is considered to be from alluvial (naturally eroded) deposits and free from most silt or clay particles. For gravel this may commonly be described as 'pea shingle'. Uniformity coefficient D ₆₀ /D ₁₀ < 3,0. Grain size can be identified by use of a sieve test, as in EN 933–1 (see Annex G).			
^d See NOTE 2 in 4.2.8.5.2.			

NOTE 4 Loose fill material specifications in Table 4 are examples that can be accepted without further testing in accordance with EN 1177.

4.2.8.5.3 Equipment with a free height of fall not exceeding 600 mm and without forced movement

It is not necessary to test the critical fall height of a surface beneath playground equipment having a free fall height of less than 600 mm and which does not cause forced movement on the body of the user.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒
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4.2.8.5.4 Adjacent platforms

If the free height of fall between adjacent platforms is more than 1 m, the surface of the lower platform shall present the necessary impact attenuating properties.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒
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4.2.8.6 Protection against injuries due to other types of movement

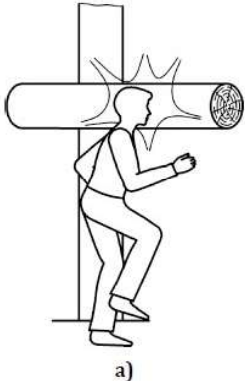
The space in, on or around the equipment that can be occupied by the user shall not contain any obstacles that the user is not likely to expect and which could cause injuries if hit by the user. NOTE Examples of such obstacles are shown in Figure 20.	No such hazard.	P ☒ F ☐ N/A ☐ N/T ☐
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Prüfbericht-Nr.: CN255EQ7 001

Seite 32 von 68

Test report no.:

Page 32 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
	  Figure 20 — Unexpected obstacles		
4.2.9	Means of access		
4.2.9.1	Ladders		
	The spacing of the rungs or steps shall conform to the head entrapment requirements given in 4.2.7.2. Rungs and steps shall be non-rotating and equally spaced. Equal spacing is required only between the rungs. It is not required between the highest rung and the platform or the ground and the first rung. The requirement for equal spacing does not apply to rope ladders. NOTE To assist the safe transfer from the ladder to the platform or its summit, the stiles of the ladder without the rungs or steps can continue vertically from the platform to the top of the barrier. Wooden components shall have positive connections that cannot be undone or shifted. Nails or wood screws shall not be used as the only form of connection. To allow for the foot to rest correctly on the rung or step there shall be an unobstructed space at the rear of the ladder of at least 90 mm from the centre of the rung or tread measured at 90° to the ladder. Rungs and steps shall be horizontal to within $\pm 3^\circ$. Ladders shall have rungs and/or stiles or shall have handrails that conform to the requirements for grip according to 4.2.4.6 or for grasp according to 4.2.4.7.	No such design.	P ☐ F ☐ N/A ☒ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 33 von 68

Test report no.:

Page 33 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
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4.2.9.2 Stairs

Stairs with a free height of fall greater than 600 mm shall conform to the requirements of 4.2.4 concerning protection against falling. Guardrails and/or barriers shall be provided from the first step and shall conform to the requirements for grasp (4.2.4.7) or a handrail shall be provided.

NOTE 1 This is to ensure that hand support is available for the entire run of the stair.

For stairs leading to platforms up to 1 000 mm in height a guardrail may replace the barrier, providing the gap beneath the guardrail is less than 600 mm when measured from the middle of the tread.

NOTE 2 For platforms above 1 000 mm, a combination of guardrails and barriers is allowed.

NOTE 3 A panel type barrier with a thickness of less than 60 mm is considered in compliance with grasp requirements.

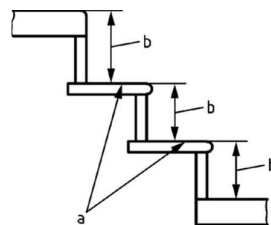
The inclination of stairs shall be constant. Openings shall conform to the entrapment requirements given in 4.2.7.2. The treads shall be spaced equally, shall be of uniform construction, and shall be horizontal within $\pm 3^\circ$.

To provide adequate space for standing, the minimum projection of tread shall be 140 mm and the minimum depth of tread shall be 110 mm (see Figure 22).

Where the overall height of the set of stairs is more than 2 000 mm above ground level, intermediate landings shall be provided at height intervals not exceeding 2 000 mm. Intermediate landings shall be at least as wide as the set of stairs and at least 1 000 mm long.

Comply.

P ☒
F ☐
N/A ☐
N/T ☐



Key
a stair tread
b stair riser

NOTE The risers are not required to be infilled.

Figure 21 — Parts of a stair

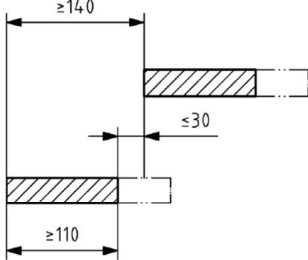
Prüfbericht-Nr.: CN255EQ7 001

Seite 34 von 68

Test report no.:

Page 34 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
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	Dimensions in millimetres  Figure 22 — Minimum projection and depth of tread		
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4.2.9.3	Ramps Ramps shall be inclined at an angle of up to 38° to the horizontal and shall be of a constant angle. NOTE 1 Surfaces with a greater inclination are not regarded as ramps but can be used as a means of access. Ramps shall conform to the requirements of 4.2.4. For ramps leading to platforms up to 1 m in height a guardrail may replace the barrier, providing the gap beneath the guardrail is less than 600 mm. If guardrails are used, they shall be provided from the beginning of the ramp. Ramps shall be level within $\pm 3^\circ$ across their width. To reduce the risk of slipping, ramps expected to be used by all children shall include means to improve the grip of the foot. NOTE 2 This can be achieved by use of suitable foot holds.	No such design.	P ☐ F ☐ N/A ☒ N/T ☐
4.2.9.4	Steep play elements For steep play elements provided on easily accessible parts of equipment the opening in the barrier shall be 500 mm maximum and the free height of fall of the platform shall be 2 000 mm maximum. NOTE This is to help the carer reach up to the user if necessary. Openings leading from a platform with a free height of fall of > 1 000 mm to a steep play element shall have hand supports that comply with grasp requirements.	No such design.	P ☐ F ☐ N/A ☒ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 35 von 68

Test report no.:

Page 35 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.2.9.5	Easily accessible playground equipment		
	Equipment designed to allow users to move quickly and freely onto it is to be considered as easily accessible. It is not the intention of this standard to give a definitive list of the types of possible access and associated requirements, but to provide guidance on the best way to tackle the issue of easy access. The following is an example of the hierarchy of three easy access possibilities: a) Ramps starting from the ground are the easiest means of access to the equipment. b) Stairs are the next easiest means of access to the equipment. c) Ladders are the least easy means of access to equipment in this example. There are many designs which can delay access to the equipment, thus giving more time for carers to intervene as appropriate. Such design features may include, but are not restricted to, movement, height or dimensional requirements e.g. reach distance or step height. NOTE 1 Carers include adults, responsible siblings and others who are looking after the user (see CEN/CLC Guide 14 for more information on carers). NOTE 2 Examples of access restriction by height or dimension might include but are not limited to ramps where the start is more than 600 mm above the ground or ladders where the lowest rung is more than 400 mm above the ground. The figure of 400 mm is a compromise between the need to limit access and the need to provide a safe means of exit by the same route.	Comply.	P ☒ F ☐ N/A ☐ N/T ☐
4.2.10	Connections		
	Connections shall be secured such that they cannot come loose of their own accord unless specifically designed to do so. Connections shall be safeguarded so that they cannot be undone without tools.	Comply. Connections cannot be undone without tools.	P ☒ F ☐ N/A ☐ N/T ☐
4.2.11	Consumable components		
	Replaceable components should be protected against unauthorized intervention and should require little maintenance. Any lubricants leaking out should not soil the equipment or adversely affect its safe use.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒

Prüfbericht-Nr.: CN255EQ7 001

Seite 36 von 68

Test report no.:

Page 36 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.2.12	Ropes		
4.2.12.1	Ropes fixed at one end		
	For suspended ropes between 1 m and 2 m in length, the distance between ropes fixed at one end and fixed equipment shall be not less than 600 mm and the distance between ropes fixed at one end and swinging equipment shall be not less than 900 mm. Ropes fixed at one end shall not be combined with swings in the same bay (see EN 1176-2). For suspended ropes of between 2 m and 4 m in length, the distance between ropes fixed at one end and other parts of equipment shall be not less than 1 m. The rope diameter shall be between 25 mm and 45 mm. NOTE A stiffer rope, depending on its diameter and construction, will make it more difficult to create a loop, thus reducing the risk of strangulation. However, it will still allow good grip.	No such design.	P ☐ F ☐ N/A ☒ N/T ☐
4.2.12.2	Ropes fixed at both ends (climbing ropes)		
	For a rope fixed at both ends, typically for climbing up and not part of a larger net structure, it shall not be possible to make a loop in the rope that is wide enough to let probe C pass through (see Figure D.1) nor probe E (see Figure D.1) pass through. NOTE 1 This requirement is intended to remove the risk of strangulation. The rope diameter shall meet the grip requirements given in 4.2.4.6. NOTE 2 Ropes with sufficient roughness allow for a good grip. This can be achieved, for example, by using outer strands with a diameter of at least 6 mm. When a rope fixed at both ends is used in conjunction with another element, care shall be taken not to create entrapment situations, see 4.2.7.2.	No such design.	P ☐ F ☐ N/A ☒ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 37 von 68

Test report no.:

Page 37 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.2.12.3	Wire ropes		
	Wire ropes shall be unstressed and shall be made from galvanized or corrosion-resistant wire. Ferrules shall conform to EN 13411-3 and the rope end shall coincide with the edge of the grip. Wire rope grips shall be utilized in accordance with EN 13411-5. If accessible and the thread ends protrude more than 8 mm, they shall only be used outside the minimum space or shall be covered by suitable means. The ends of the turnbuckles shall be closed (see Figure 23) and shall be made from corrosion-resistant material. It shall not be possible to undo turnbuckles without a tool.	No such design.	P ☐ F ☐ N/A ☒ N/T ☐
	Key 1 ferrule 2 turnbuckle 3 wire rope grips Figure 23 — Example of ferrules, turnbuckles and wire rope grips		
4.2.12.4	Sheathed wire ropes		
	When sheathed wire ropes are used for climbing ropes, climbing nets, hanging ropes and the like, each strand shall be sheathed with yarn made from synthetic or natural fibres. The sheath shall not contain monofilament. NOTE The wires inside the strands make it more difficult for the ropes to be intentionally damaged and thus reduce any hazards.	No such design.	P ☐ F ☐ N/A ☒ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 38 von 68

Test report no.:

Page 38 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.2.12.5	Fibre ropes (textile type)		
	Fibre ropes shall either: a) conform to EN ISO 9554 or EN ISO 2307; or b) the manufacturer shall supply a work certificate stating the material used and the safe working load. In the case of climbing ropes, climbing nets, hanging ropes and the like, the strands shall have a soft and non-slip covering, e.g. hemp or equivalent material. Monofilament plastic ropes or ropes made from similar materials shall not be used.	No such design.	P ☐ F ☐ N/A ☒ N/T ☐
4.2.13	Chains		
	Chains for playground equipment shall conform to the dimensional requirements in EN 818-2:1996+A1:2008, Table 2 or EN 818-3:1999+A1:2008, Table 2 as a minimum and, when tested in accordance with D.5, shall conform to one of the following requirements: a) the 8,6 mm rod (see Figure D.13) shall not pass through the minimum cross-section of the chain opening, NOTE When "8-mm-short-link-chains" wear, the openings can increase. If the opening on a worn chain is greater than 8,6 mm, a risk assessment can be carried out to confirm whether replacement is necessary. or where a connection is made b) if the 8,6 mm finger rod passes through the opening, the 12 mm rod (see Figure D.13) shall also pass through the opening.	No such parts.	P ☐ F ☐ N/A ☒ N/T ☐
4.2.14	Foundations		

Prüfbericht-Nr.: CN255EQ7 001

Seite 39 von 68

Test report no.:

Page 39 of 68

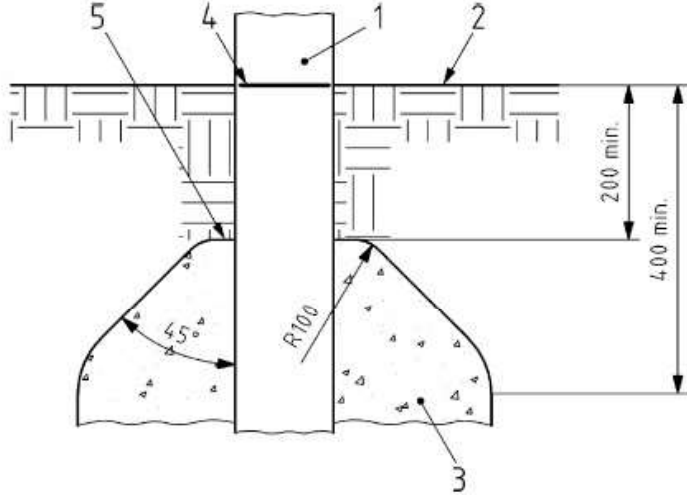
Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
	The foundations shall be designed such that they do not present a hazard (tripping, impact). In loose fill surfacing (e.g. sand), foundations shall be installed or laid in accordance with one of the following: a) so that pedestals, footings and fixing elements on the equipment are at least 400 mm below the playing surface or; NOTE 1 Post shoes are not considered foundations. b) if the tops of the foundations are as shown in Figure 24 at least 200 mm below the surfacing; or c) so that they are covered by items of equipment or equipment parts (e.g. central foundation of a roundabout). Any parts that protrude from the foundations such as the ends of screws shall be at least 400 mm below the playing surface unless they are effectively covered and finished as described in 4.2.5. Additional measures should be taken for equipment in which the stability depends on only one cross-section. Foundations of one post equipment shall be accessible for periodic inspection. The choice and installation of impact attenuating surfacing should be carefully planned in order to allow for inspections and if access to the foundations is required. For example, for synthetic surfacing, this may require the surfacing to be cut-back and re-laid. NOTE 2 When components are embedded in concrete there is a risk of corrosion or rotting. The high rate of corrosion or rotting under dynamic loading endangers the stability of the anchorage of units in which the stability depends on only one cross-section, or in which the stability is provided by two-legged members or rows of members.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒

Prüfbericht-Nr.: CN255EQ7 001

Seite 40 von 68

Test report no.:

Page 40 of 68

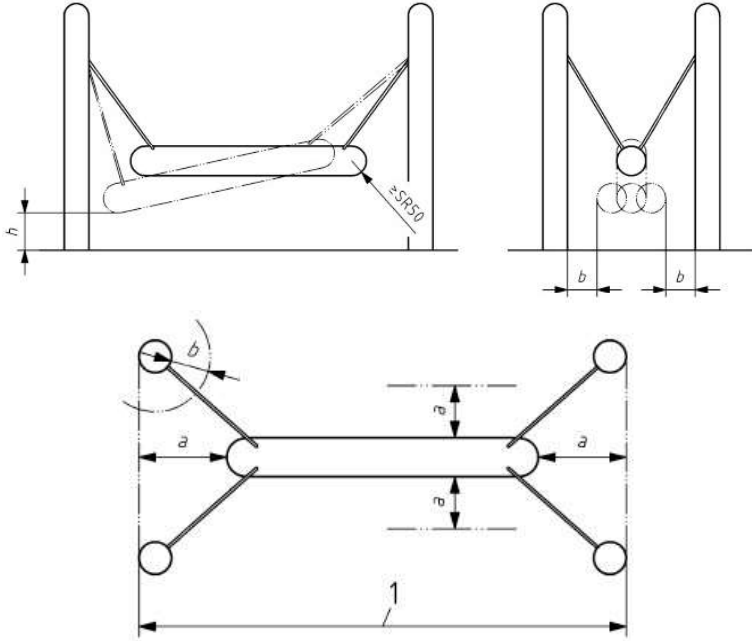
Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
	Dimensions in millimetres  Key 1 post 2 playing surface 3 foundation 4 basic level mark 5 top of foundation NOTE The basic level mark given by the manufacturer on the equipment shows the level of the playing surface. It is advised to maintain this basic level. Figure 24 — Example of foundations		

Prüfbericht-Nr.: CN255EQ7 001

Seite 41 von 68

Test report no.:

Page 41 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements - Tests	Messergebnisse - Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.2.15	Heavy suspended rigid beams		
	Rigid suspended beams are deemed heavy when they have a mass of 25 kg or more. There shall be a ground clearance of at least 400 mm underneath heavy suspended rigid beams, (see Figure 25). The ground clearance is measured as the distance between the lowest point of the lower edge of the heavy suspended rigid beam and the surface below. The heavy suspended rigid beam shall be so constructed that all changes in the profile of the beam shall have a radius of at least 50 mm. The range of movement (a in Figure 25) shall not exceed 300 mm and shall not go beyond the support posts. The distance between the support posts and the heavy suspended rigid beam (b) shall not be less than 230 mm throughout its full range of movement.	No such design.	P ☐ F ☐ N/A ☒ N/T ☐
	Dimensions in millimetres  Key a range of movement b free space towards standing construction, ≥ 230 mm h ground clearance l maximum deflection Figure 25 — Example of a heavy suspended rigid beam		

Prüfbericht-Nr.: CN255EQ7 001

Seite 42 von 68

Test report no.:

Page 42 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
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4.2.16 Bouncing facilities

4.2.16.1 General

A bouncing facility with a suspension bed smaller than 1,44 m² is considered as a small bouncing facility.

NOTE Bouncing facilities with a suspension bed $\geq 1,44$ m² are considered as large bouncing facilities.

The extent of the falling space of a suspension bed of a small bouncing facility shall be 1 500 mm. The extent of the falling space of a suspension bed of a large bouncing facility shall be 2 000 mm. When a suspension bed gives a user a predetermined jumping direction to outside of the suspension bed, the extent of the impact area to that direction shall be at least 3 000 mm.

Unprotected edges within the falling space that the user can hit shall be rounded with at least 20 mm radius.

The maximum allowed height of any point of the suspension bed is 600 mm measured from the surrounding ground or platform of the playground equipment 1 500 mm away from that specific point (see Figure 26).

No such design.

P ☐
F ☐
N/A ☒
N/T ☐

Dimensions in millimetres

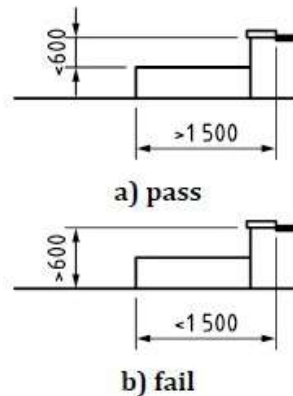


Figure 26 — Acceptable and not acceptable solutions due to height of the suspension bed

Prüfbericht-Nr.: CN255EQ7 001

Seite 43 von 68

Test report no.:

Page 43 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
	In case of failure of the suspension bed or its supports (spring, rubber band etc.) the user shall not fall more than 600 mm unless the impact area below has an adequate level of impact attenuation equivalent to the free height of fall of the suspension bed. There shall be no dangerous obstacles under or around the suspension bed, onto which a user could fall or otherwise be injured. For a bouncing facility the extent of the free space shall be 1 500 mm measured horizontally from any point at the perimeter and 3 500 mm above the suspension bed. During a physical weight test according to 4.2.2, the minimum ground clearance shall be ≥ 100 mm. NOTE 1 This is to prevent unintended contact with the ground while jumping. During a dynamic physical test according to D.6 the rebound effect of the bouncing facility shall not be more than 700 mm above the suspension bed. NOTE 2 This is to prevent the user bouncing too high and reaching a falling height greater than the adequate level of impact attenuation of the adjacent surface. Consideration shall be given to the design of the equipment and to the layout of the surrounding area in order to avoid jumping from surrounding installations (other than the enclosure) onto the suspension bed. Suspension beds made out of textile shall maintain 80 % of their initial tensile strength according to EN ISO 13934-1 after exposure to light and UV, according to EN ISO 4892-3, for a minimum period of 400 h. Large bouncing facilities shall have a sufficient ground clearance under the suspension bed. During the physical test according to 4.2.2, the clearance below the suspension bed shall remain greater than 230 mm. If this cannot be achieved, access under the suspension bed shall be prevented in a way that the test probe E cannot pass any opening leading under the suspension bed. NOTE 3 This is to protect non-users from getting squeezed between the ground and the suspension bed. Openings in the suspension bed shall not be greater than 30 mm measured in the smallest direction. Under a static weight of 69,5 kg applied to the middle of the suspension bed, any opening shall not allow passage of the test probe E. Access to the space under the suspension bed shall be provided for cleaning.	No such design.	P ☐ F ☐ N/A ☒ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 44 von 68

Test report no.:

Page 44 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.2.16.2	Enclosures of bouncing facilities		
	Where enclosures are provided, a risk assessment shall be made before allowing an enclosure for bouncing facilities in unsupervised settings. An enclosure, where climbing is not encouraged and with a minimum height of 1 800 mm, may be introduced to reduce the falling space or to prevent users from falling from the suspension bed. Sections of the enclosure above the height of 2 400 mm shall be unclimbable. The enclosure shall withstand a horizontal force of (800 ± 50) N applied to the centre of each enclosure section. Net yarns shall have a minimum diameter of 2 mm to reduce the risk of cutting fingers of users.	No such design.	P ☐ F ☐ N/A ☒ N/T ☐
5	Verification of compliance and reports		
5.1	General		
	Unless otherwise specified the requirements of Clause 4 shall be verified by measurement, visual examination or practical tests. Before testing, the equipment shall be assembled in accordance with the manufacturer's instructions into a condition similar to its position of use. Test reports shall include the following: a) number and date of this European Standard, i.e. EN 1176-1:2017; b) details of the equipment tested; c) details of the condition of the equipment including any defects observed before the test; d) details of any change in the condition of the equipment observed after the tests; e) test result.	Informative.	P ☒ F ☐ N/A ☐ N/T ☐
5.2	Confirming the adequate level of impact attenuation after installation of impact attenuating surfacing		
	As there are significant regional variations in the provision and management of impact attenuating surfacing, it is recommended that requirements are given at a national level. If no requirements are given at national level, Annex H shall be used as it gives requirements to confirm the adequate level of impact attenuation after installation of the impact attenuating surfacing. NOTE This is to ensure that if Annex H is not followed, national requirements are given.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒

Prüfbericht-Nr.: CN255EQ7 001

Seite 45 von 68

Test report no.:

Page 45 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
6	Information to be provided by the manufacturer/supplier		
6.1	Information to be provided by the manufacturer/supplier of playground equipment		
6.1.1	General product information		
	The manufacturer/supplier shall provide instructions in the appropriate language(s) of the country in which the equipment is to be installed and used. The instructions shall conform to the following: a) instructions shall be printed legibly and in a simple form; b) illustrations shall be used wherever possible; and c) instructions shall include at least the following information: 1) details of the installation, operation, inspection and maintenance of the equipment; 2) clause or note drawing the operator's attention to the need to increase inspection/ maintenance if the equipment is subject to heavy use and/or the stability of the equipment relies on one post; 3) advice to take care, in relation to specific hazards to children, due to incomplete installation or dismantling, or during maintenance. The manufacturer/supplier should supply copies of test reports to purchasers upon request.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒

Prüfbericht-Nr.: CN255EQ7 001

Seite 46 von 68

Test report no.:

Page 46 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
6.1.2	Pre-information		
	The manufacturer/supplier shall provide information concerning the safety of the installation prior to the acceptance of the order, e.g. a catalogue data sheet. This information shall include at least the following, where relevant: a) minimum space; b) surfacing requirements (including free height of fall and extent of surfacing); c) details of the foundations and any specific provisions for their accessibility during inspection and maintenance; d) overall dimensions of the largest part(s); e) mass of the heaviest part/section in kilograms; f) guidance regarding the target user group for the equipment; g) if the equipment is intended only for indoor use or under supervised conditions; h) availability of spare parts; and i) certification of conformity with this European Standard.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒

Prüfbericht-Nr.: CN255EQ7 001

Seite 47 von 68

Test report no.:

Page 47 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
6.1.3	Installation information		
	The manufacturer/supplier shall supply an equipment delivery parts list with the equipment. The manufacturer/supplier shall supply installation instructions for the correct assembly, erection and placing of the equipment. This information shall include at least the following: a) minimum space requirements and safety clearances; b) equipment and parts identification; c) erection sequence (assembly instruction and installation details); d) matching aids where necessary, e.g. signs on parts accompanied by appropriate instructions; e) need for any special tools, lifting devices, templates or other assembly aids to be used and any precautionary measures to be taken. Where necessary, torque values should be given; f) constructional space required to install the item of equipment; g) orientation, where necessary, in relation to sun and wind; h) details of the required foundation, under normal conditions, anchorage in the ground and the design and location of the foundation (with a note that care should be taken concerning abnormal conditions); i) details of the foundations and any specific provisions for their accessibility during inspection and maintenance; j) specific instructions if a particular landscape profile is necessary for safe operation, e.g. falling height; k) free height of fall (for impact attenuation surfacing needs); l) need for and details of the application of any painting or treatment: and m) removal of assembly aids before the equipment is used. Drawings and diagrams shall clearly specify the principal dimensions of the equipment and the relevant space, heights and areas required for installation. The manufacturer/supplier shall supply the details necessary for inspection of the playground equipment prior to its first use.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒

Prüfbericht-Nr.: CN255EQ7 001

Seite 48 von 68

Test report no.:

Page 48 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
6.1.4	Inspection and maintenance information NOTE Attention is drawn to EN 1176–7.		
6.1.4.1	The manufacturer/supplier shall provide instructions for maintenance (marked with the number of this standard), which shall include a statement that the frequency of inspection will vary with the type of equipment, e.g. equipment where the stability relies on one post, or materials used and other factors, e.g. heavy use, levels of vandalism, coastal location, air pollution, age of equipment. The manufacturer/supplier shall also provide drawings and diagrams necessary for maintenance, inspection and checking of correct operation and, when appropriate, repair of the equipment.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒
6.1.4.2	The instructions shall specify the frequency with which the equipment or its components should be inspected or maintained and shall include guidance on the following, where relevant: a) routine visual inspection (see 3.26); NOTE 1 For playgrounds subject to heavy use or vandalism, daily inspection of this type might be necessary. NOTE 2 Examples of visual and operational inspection points are: cleanliness, equipment ground clearances, ground surface finishes, exposed foundations, sharp edges, missing parts, excessive wear (of moving parts) and structural integrity. b) operational inspection (see 3.27); This should be done every 1 to 3 months, or as indicated by the manufacturer's instruction. Special attention should be given to 'sealed-for-life' parts and equipment where stability relies on one post. c) annual main inspection (see 3.28). Special attention should be given to 'sealed-for-life' parts and equipment where stability relies on one post. NOTE 3 The annual main inspection may require excavation or dismantling of certain parts.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒

Prüfbericht-Nr.: CN255EQ7 001

Seite 49 von 68

Test report no.:

Page 49 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
6.1.4.3	The instructions shall also specify the following: a) if necessary, the servicing points and methods of servicing, e.g. lubrication, tightening of bolts, re-tensioning of ropes; b) that replacement parts shall conform to manufacturer's specifications; c) if special disposal treatment is required for some equipment or parts; d) identification of spare parts; e) any additional measures to be taken during the run-in period, e.g. tightening of fastenings, tensioning of ropes; f) the need to keep drainage holes clear; g) that surfacing shall be maintained: in particular, the levels of loose fill materials. h) that GRP (glass-reinforced plastics) should be replaced or repaired before the glass fibres become exposed through wear or damage. This particularly applies to slides.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒

Prüfbericht-Nr.: CN255EQ7 001

Seite 50 von 68

Test report no.:

Page 50 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
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6.2	Information to be provided by the manufacturer or supplier of impact attenuating surfacing		
6.2.1	Pre-information for impact attenuating surfacing		
	The manufacturer/supplier shall provide the following information concerning the performance of the impact attenuating surfacing prior to the acceptance of the order (does not apply to turf/topsoil): a) where particulate materials that are included in Table 4 are specified, clear information about the type of material (see Table 4) and the depth of the layer to be used shall be provided, or, if not included in Table 4, the critical fall height of the surfacing as tested in accordance with EN 1177, together with copies of test reports or certificates; b) outline of the installation procedure, climatic limitations on installation and other precautions required; c) procedures to be followed for the operation, inspection and maintenance of the surfacing; d) factors that could affect the properties of the impact attenuating surfacing in service; e) period for which the adequate level of impact attenuation is expected with adequate maintenance; f) how the material allows for routine inspection of equipment foundations, particularly where one-post equipment is to be surrounded by wet pour/poured-in place material; g) whether the material is intended for indoor or outdoor use, or both; h) availability of spare parts (if any) and methods to be used for the repair of localized areas of damage; i) compliance of impact attenuating surfacing materials with 4.1 (namely 4.1.6), if applicable; j) a note drawing the operator's attention to the need to increase the frequency of inspection/maintenance if the impact attenuating surfacing is subject to heavy use and/or any conditions that could reduce the impact attenuation (e.g. degradation of organic materials or vandalism as well as influence of ageing due to UV exposure); k) a warning to take care, in relation to specific hazards to children, during incomplete installation or during maintenance.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒

Prüfbericht-Nr.: CN255EQ7 001

Seite 51 von 68

Test report no.:

Page 51 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
6.2.2	Installation information for impact attenuating surfacing		
	The manufacturer/supplier of playground surfacing shall provide full and detailed installation instructions in the appropriate language(s) of the country in which the surfacing is to be installed and used. These instructions shall conform to the following: a) instructions shall be printed legibly and in a simple form; b) illustrations shall be used wherever possible; and c) instructions shall include at least the following information: 1) complete procedure for the preparation of the ground, substrate, drainage, etc.; 2) assembly and installation details for the surfacing and equipment required to ensure that the adequate level of impact attenuation is provided; 3) how to deal with edges, perimeters and junctions with other materials, if necessary; 4) any weather limitations during the installation and any subsequent weather protection required; 5) specific instructions if a particular landscape profile is necessary for safe installation and performance; 6) conditions to meet impact attenuation surfacing needs according to the free height of fall of the equipment. The manufacturer/supplier shall supply the details necessary for inspection of the playground impact attenuating surfacing prior to its first use.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒
6.2.3	Inspection and maintenance information for impact attenuating surfacing		
	NOTE Attention is drawn to EN 1176-7.		
6.2.3.1	The manufacturer/supplier of playground surfacing shall provide instructions for maintenance and inspection procedures, e.g. removal of contaminants, with a statement that the frequency of inspection will vary with the type of impact attenuating surfacing material used and its surroundings, e.g. access/exit areas, and other factors, e.g. heavy use, levels of vandalism, coastal location, air pollution, ageing of material. NOTE Lack of maintenance can reduce the impact attenuation properties.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒

Prüfbericht-Nr.: CN255EQ7 001

Seite 52 von 68

Test report no.:

Page 52 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
6.2.3.2	Maintenance instructions shall provide all information necessary for retaining the required performance (e.g. minimum depth of particulate impact attenuating surfacing) and, when appropriate, repair or refill of the impact attenuating surfacing. For all types of impact attenuating surfacing particular attention shall be given to the effects of ageing (exposure to UV, heat, cold), pollution, causing degradation or the loss of impact attenuating properties. The instructions shall also specify the following: a) that replacement parts shall conform to manufacturer's specifications; b) if special disposal treatment is required for the material or parts; c) the identification of spare parts (connectors, slabs, ...); d) any additional measures to be taken, specifically methods of cleaning, disinfecting, repairing etc.; e) the need to keep drainage system functioning; f) that surfacing shall be maintained: in particular, the depth of loose fill materials. NOTE The annual main inspection may require excavation and access to foundations and subsequent repair of the impact attenuating surfacing.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒
6.2.4	Identification of impact attenuating playground surfacing		
	The surfacing shall be labelled by the manufacturer or supplier, or written information shall be provided for its identification and performance.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒
7	Marking		
7.1	Equipment identification		
	The equipment shall be marked legibly, permanently and in a position visible from ground level with at least the following: a) name and address of manufacturer or authorized representative; b) equipment reference and year of manufacture; and c) the number and date of this European Standard, i.e. EN 1176-1:2017.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒

Prüfbericht-Nr.: CN255EQ7 001

Seite 53 von 68

Test report no.:

Page 53 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
7.2	Basic level mark		
	Equipment shall be marked legibly and permanently with the basic level mark (see Figure 24).	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒
A	Annex A (normative) Loads		
	Details see EN 1176-1:2017 Annex A.		
B	Annex B (normative) Method of calculation of structural integrity		
	Details see EN 1176-1:2017 Annex B.		
C	Annex C (normative) Physical testing of structural integrity		
	Details see EN 1176-1:2017 Annex C.		
D	Annex D (normative) Test methods for entrapment		
	Details see EN 1176-1:2017 Annex D.		
E	Annex E (informative) Overview of possible entrapment situations		
	Details see EN 1176-1:2017 Annex E.		
F	Annex F (informative) Illustrations of calculation of free height of fall (FHF)		
	Details see EN 1176-1:2017 Annex F.		

Prüfbericht-Nr.: CN255EQ7 001

Seite 54 von 68

Test report no.:

Page 54 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
G	Annex G (informative) Illustration of sieve test		
	Details see EN 1176-1:2017 Annex G.		
H	Annex H (normative) Procedure for confirming the adequate level of impact attenuation after installation of impact attenuating surfacing		
	Details see EN 1176-1:2017 Annex H.		
I	Annex I (informative) A–deviations		
I.1	General		
	A-deviation: National deviation due to regulations, the alteration of which is for the time being outside the competence of the CEN/CENELEC national member. This European Standard does not fall under any Directive of the EU. In the relevant CEN/CENELEC countries these A-deviations are valid instead of the provisions of the European Standard until they have been removed.		
I.2	France National Regulation Decree no. 96–1136 of 18 December 1996 specifying the safety requirements for community playgrounds		
	Subclause 4.2.8.5.3 The requirements of subclause 4.2.8.5.3 must not enable in France the installation of the equipment concerned on a surface that does not have impact-attenuating properties, for example bitumen, concrete, macadam, bricks or stones.	Not for France	P ☐ F ☐ N/A ☒ N/T ☐
	Annex II, 3, a) This part of the decree indicates that “the surfaces onto which children are liable to fall when using the equipment must be covered in suitable impact attenuating materials”.	Not for France	P ☐ F ☐ N/A ☒ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 55 von 68

Test report no.:

Page 55 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
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I.3	Germany		
I.3.1	General		
	In Germany, the following deviations from this standard are binding.		
I.3.2	Impact attenuating surfacing		
	The requirements of the surfacing in the impact area of playground equipment and their allocation to heights of fall are given by German national law: a) Playgrounds as structural works are subject to the German building code. The individual configuration of structural works can only be effected by German national standards; b) The law for safety of equipment and products [Artikel 1 Gesetz über die Bereitstellung von Produkten auf dem Markt (Produktsicherheitsgesetz - ProdSG)]; c) Specifications of the German legal accident insurances (GUV). They shall thus be maintained as given in Table I.1. The allocation of the surfacing to the free heights of fall is no barrier to trade. In Germany therefore Table I.1 is valid instead of Table 4.	Not for Germany	P ☐ F ☐ N/A ☒ N/T ☐

Table I.1 — Materials in dependence of permissible free heights of fall

No.	Surfacing material ^a	Description	Minimum layer thicknesses ^b mm	Maximum height of fall mm
1	concrete/stone	—	—	≤ 600
2	bituminous surfacing	—	—	≤ 600
3	topsoil	—	—	≤ 1 000
4	turf	—	—	≤ 1 500 ^d
5	Bark mulch	20 mm to 80 mm grain size broken bark of conifers	200 300	≤ 2 000 ≤ 3 000
6	wood chips	mechanically shredded wood (no wood based materials) without bark and leaf components, grain size 5 mm to 30 mm	200 300	≤ 2 000 ≤ 3 000
7	sand ^c	grain size 0,2 mm to 2 mm	200 300	≤ 2 000 ≤ 3 000
8	gravel ^c	grain size 2 mm to 8 mm	200 300	≤ 2 000 ≤ 3 000
9	other materials or other thicknesses	according to HIC test (see EN 1177)	—	Critical fall height as tested

^a Properly prepared surfacing material for use in children's playgrounds.

^b For loose particulate material, 100 mm are to be added to the minimum depth to compensate for displacement (see 4.2.8.5.1).

^c No silty or clay particles. Grain size can be identified by use of a sieve test, such as EN 933-1.

^d See 4.2.8.5.2, NOTE 2.

Prüfbericht-Nr.: CN255EQ7 001

Seite 56 von 68

Test report no.:

Page 56 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
	Additional requirements of EK2 / AK2.5		
	Additional requirements (decisions) of EK2 / AK2.5 for this product type were taken into account. For results see separate annex / report to this test report.	Not applicable.	P ☐ F ☐ N/A ☒ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 57 von 68

Test report no.:

Page 57 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
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EN 1176-3:2017		Playground equipment and surfacing — Part 3: Additional specific safety requirements and test methods for slides			
1	Scope				
2	Normative references				
3	Terms and definitions				
4	Safety requirements				
4.1	General Slides shall conform to EN 1176-1 unless otherwise specified in this part of EN 1176.	Test according to EN 1176-1 was conducted with positive result.	P F N/A N/T	☒ ☐ ☐ ☐	
4.2	Access Access to the starting section shall be by means of an access ladder, stairs, climbing section or device. In the case of embankment slides, access to the starting section may be gained directly from the mound. For free-standing slides, the maximum vertical height that the first stairs can reach without a change in direction or offset, by a minimum width of the means of access, shall be 2 500 mm. Where the starting section of a slide is easily accessible the free height of fall (h) shall be 1 000 mm maximum unless guarding is provided (see 4.3.2). For all attachment slides with a fall height greater than 1 000 mm, a rail or crossbar across the access opening shall be provided (see Figure 1a)). The rail or crossbar shall be positioned between the platform guard rail or barrier and the start of the sliding section. The height of the rail or crossbar shall be between 600 mm and 900 mm above the starting section. For attachment slides with a starting section or barrier beyond the edge of the platform, the area of the starting section between the rail or crossbar and the platform shall comply with the same requirements as platforms in EN 1176-1. NOTE Such requirements include the height of guard rail or barrier.	Stairs and climbing section provided. Not applicable. Attachment slide. Comply. Not applicable. Not applicable. Not applicable.	P F N/A N/T	☒ ☐ ☐ ☐	

Prüfbericht-Nr.: CN255EQ7 001

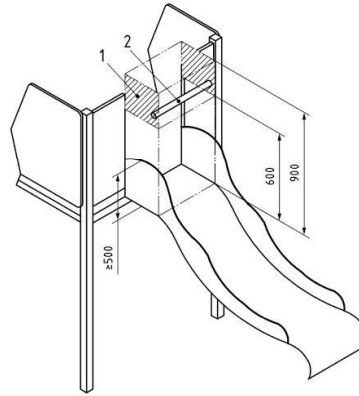
Seite 58 von 68

Test report no.:

Page 58 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
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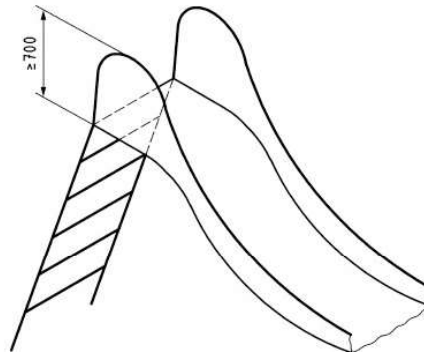
Dimensions in millimetres



Key

- 1 zone representing all the possible positions of a rail or crossbar
- 2 crossbar

a) Example of lateral protection of a starting section for attachment slides over 1 000 mm and zone for the possible position of a rail or crossbar



b) Example of lateral protection of a starting section of a free-standing slide

Figure 1 — Examples of lateral protection

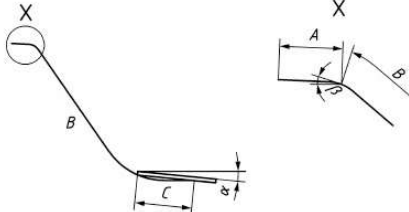
4.3	Starting section NOTE The starting section and run-out section are illustrated in Figure 2.	Details see clause 4.3.1 to 4.3.4.	P ☒ F ☐ N/A ☐ N/T ☐
4.3.1	Length and angle Each slide shall have a starting section of at least 350 mm length. The starting section shall have a downward slope tolerance from 0° to 5° in the direction of the sliding section, the measurement being made at the centreline of the starting section. For attachment slides the platform may be used as a starting section.	Platform used as the entire starting section. 0°	P ☒ F ☐ N/A ☐ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 59 von 68

Test report no.:

Page 59 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result								
	 Key A starting section measured along the surface of the slide B sliding section measured along the surface of the slide C run-out section measured along the surface of the slide α maximum declination of the run-out section β maximum declination of the starting section Figure 2 — Illustration of the position of the sections of a slide										
4.3.2	Guarding section The starting section shall have a guarding section conforming to the barrier requirements of EN 1176-1 when one of the following applies: — the length of the starting section is more than 400 mm; — the starting section is easily accessible and has a free height of fall of more than 1 000 mm; — the free height of fall of the starting section is more than 2 000 mm. The guarding section shall either be a continuation of the lateral protection or be outside the plane of the lateral protection. When the guarding section is separate from or outside the plane of the lateral protection, the maximum vertical or horizontal offset shall be less than 89 mm. For attachment slides, the opening in the barrier shall be the same as the width of the starting section or guarding section. For attachment slides where all or part of the starting section is beyond the platform edge, the guarding section shall have a height of at least 500 mm at some point (see Figure 1a)). For attachment slides where the platform is used as the entire starting section, the requirements for protection against falling in EN 1176-1:2017, 4.2.4, apply. For free-standing slides, the guarding section shall have a height of at least that required for platforms at one point (see Figure 1b)).	Platform used as the entire starting section. Not applicable. Not applicable. Comply. Not applicable. Comply. Not applicable.	<table><tr><td>P</td><td>☒</td></tr><tr><td>F</td><td>☐</td></tr><tr><td>N/A</td><td>☐</td></tr><tr><td>N/T</td><td>☐</td></tr></table>	P	☒	F	☐	N/A	☐	N/T	☐
P	☒										
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Prüfbericht-Nr.: CN255EQ7 001

Seite 60 von 68

Test report no.:

Page 60 of 68

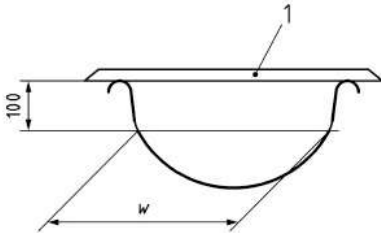
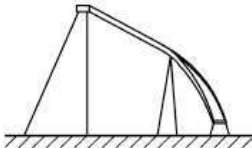
Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.3.3	Width The width of the starting section shall be equal to that of the sliding section. The starting section shall be designed so that it is aligned with the direction of the initial sliding movement. If the starting section is a platform or the extension of a platform the starting section may be greater in width than the sliding section.	Comply.	P ☒ F ☐ N/A ☐ N/T ☐
4.3.4	Lateral protection (sides) The lateral protection of the starting section shall be a continuous unbroken extension of the lateral protection of the sliding section. The construction of the lateral protection may be from multiple components. Any joints should be free from entrapment and not present a hazard to users. Any variations in the angle of declination of the top of the lateral protection in the sliding direction shall be made with a radius of at least 50 mm at some point.	Continuous unbroken extension of the lateral protection of the sliding section is provided.	P ☒ F ☐ N/A ☐ N/T ☐
4.4	Sliding section		
4.4.1	Length and angle The length of the initial straight sliding section shall not exceed 7 000 mm. The length of the second and subsequent straight sliding sections after a bend shall not exceed 5 000 mm. NOTE 1 Background information and rationale regarding limiting straight sliding sections are given in informative Annex B. The angle of declination to the horizontal of the sliding section shall not exceed 60° at any point and shall not exceed an average of 40°. The declination of the sliding section shall be measured from the centreline. If the changes in angle of declination of slides are greater than 15°, other than for the transitional part between the starting section and the sliding section, the angle shall have a radius as follows: a) for the initial 2 000 mm change in height, at least 450 mm; and b) for the remainder of the slide, at least 1 000 mm. NOTE 2 This to help prevent the user from becoming involuntarily airborne.	1720mm. Not applicable. Max. degree: 30°. Average degree: <40°. Comply.	P ☒ F ☐ N/A ☐ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 61 von 68

Test report no.:

Page 61 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.4.2	Width When measured in accordance with Figure 3 and Figure 5b) (for flat bed slides) open and straight, non-tunnel slides with sliding sections exceeding 1 500 mm in length shall have a width (w) of the sliding section of either: a) less than 700 mm; or b) more than 950 mm. Each track of a multi-track slide shall have a width of less than 700 mm. When measured in accordance with Figure 3, helical or curved slides (see Figure 4 for examples) shall have a width (w) of the sliding section of less than 700 mm.	500mm	P ☒ F ☐ N/A ☐ N/T ☐
	Dimensions in millimetres  Key 1 rule w width of sliding section Figure 3 — Measurement of width of sliding section  a) Helical slide  b) Curved slide Figure 4 — Typical examples of helical and curved slides		

Prüfbericht-Nr.: CN255EQ7 001

Seite 62 von 68

Test report no.:

Page 62 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.4.3	Sides and profile of the slide The sliding section shall have solid lateral protection of heights (p) (see Figure 5a) and Figure 5b)) in accordance with Table 1, when measured perpendicular to the sliding section surface. In the case of flat-sided slides, the sides shall not tip out from the vertical by more than 30° (see Figure 5b)). In the case of curved profile sided slides, the profile of the sliding section shall be designed in such a way that the short arm of the template (see Figure 5c)) remains horizontal when placed with the long arm perpendicular to the sliding surface at the highest internal point of the inner face of the side (see Figures 5d)) and Figure 5e)). The sides shall be perpendicular to the sliding surface or curved or angled at an obtuse angle to the sliding surface. The edges of the sides shall be rounded with a radius of at least 3 mm or provided with a means for protection from injury to the user. In the case of multi-track slides, the track divider shall have a minimum height of 100 mm and shall be rounded with a radius of at least 3 mm. Track dividers shall be provided for the full length of the sliding section as a minimum.	Lateral protection provided. Height: 190mm. Comply. Not such type. Comply. Comply. Not such type.	P ☒ F ☐ N/A ☐ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 63 von 68

Test report no.:

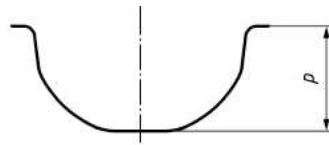
Page 63 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
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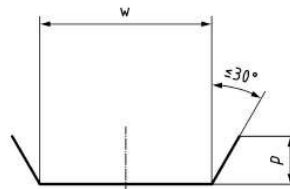
Table 1 — Height of lateral protection

Dimensions in millimetres

Free height of fall h	Height of lateral protection p
$\leq 1\,200$	≥ 100
$> 1\,200 \leq 2\,500$	≥ 150
$> 2\,500$ height	≥ 500
Easily accessible (see EN 1176-1:2017, 3.24) $> 2\,000$	≥ 500

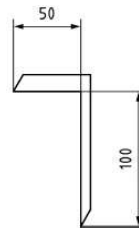


a) Measurement of height of sides of curved profile sliding section

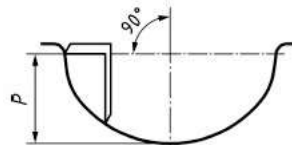


b) Measurement of width, height and inclination of sides of flat sided sliding section

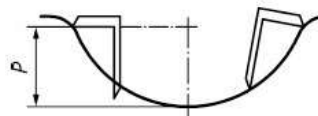
Dimensions in millimetres



c) Template for determining profile of curved profile sliding section



d) Application of template to curved profile sliding — Pass condition



e) Application of template to curved profile sliding section — Fail condition

Key

p height of lateral protection w width

Figure 5 — Measuring of slide profile

Prüfbericht-Nr.: CN255EQ7 001

Seite 64 von 68

Test report no.:

Page 64 of 68

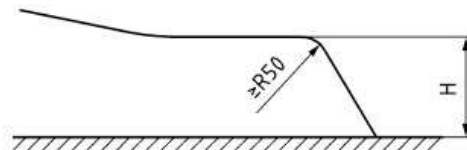
Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
4.5	Run-out section All slides shall include a run-out section, either Type 1, where the run-out section is short with a long impact area, or Type 2, where the run-out section is long with a short impact area. The declination of the run-out section shall be 10° maximum (for Type 1) or 5° maximum (for Type 2) (see Figure 2). The minimum length of the run-out section shall be in accordance with Table 2. The height (H) of the end of the run-out section (see Figures 6 and 7) above the ground shall be as given in Table 2. It can be dangerous if users stop on the sliding section. Slides should be designed to prevent the user stopping unintentionally before reaching the run-out section. The end of type 1 slide run-outs shall turn down into the ground with a radius of at least 50 mm or reverse at an angle of at least 100° in accordance with Figures 6 and 7.	Type 1. Length of run-out section: 605mm. 10°. 20mm. Comply. Comply.	P ☒ F ☐ N/A ☐ N/T ☐

Table 2 — Length and height of run-out section

Dimensions in millimetres

Length of sliding section <i>B</i>	Minimum length of run-out section <i>C</i>		Height of the end of run-out section <i>H</i>
—	Type 1 $\alpha = 10^\circ \text{ max}$	Type 2 $\alpha = 5^\circ \text{ max}$	—
$\leq 1\,500$	300		≤ 200
$> 1\,500$ $\leq 7\,500$	> 500 with end of slide in accordance with Figures 6 or 7	$> 0,3 \times \text{length of sliding}$ section, B	≤ 350
$> 7\,500$	$> 1\,500$ With end of slide in accordance with Figures 6 or 7		

Dimensions in millimetres



Key

H height of the end of slide run-out

Figure 6 — Example of continuation of the end of the slide to the ground

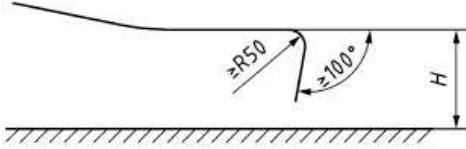
Dimensions in millimetres

Prüfbericht-Nr.: CN255EQ7 001

Seite 65 von 68

Test report no.:

Page 65 of 68

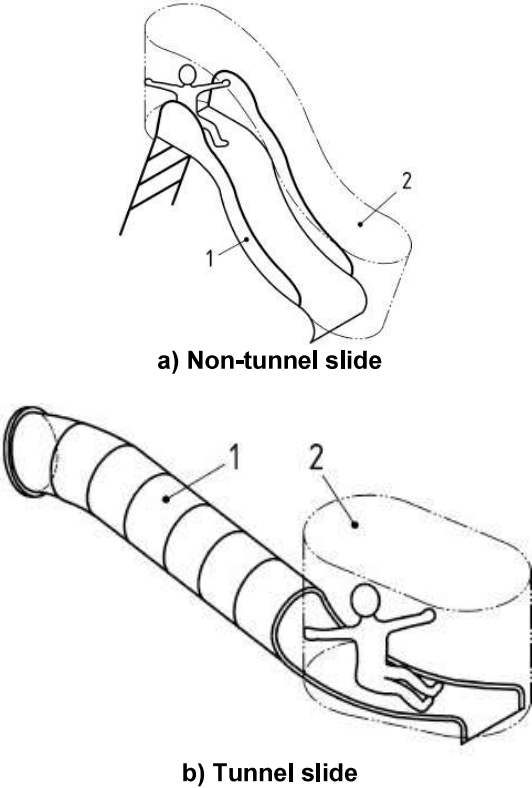
Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
	 Key H height of the end of slide run-out Figure 7 — Example of a slide ending above the ground		
4.6	Surface of the slide The design of slides and accessible structures around them shall be such that no part of clothes can become trapped (see EN 1176-1:2017, D.3). The surface of the slide length and of the lateral protection (sides) should be manufactured in such a way as to obviate any alterations likely to cause injury after exposure to weathering or other stresses arising during use. If the slide surface is constructed from more than one piece of material it should be fabricated so as to eliminate gaps at the joints so that they inhibit the introduction of sharp objects such as razor blades and splinters. The preferred method of protecting against this problem is by manufacturing one piece slide surfaces.	No such risk.	P ☒ F ☐ N/A ☐ N/T ☐
4.7	Free space The free space starts at the end of the starting section and finishes at the end of the run-out section (see Figure 8). Certain slide features, e.g. rail or crossbar, hoods or similar, may be present in the free space as they provide additional safety. If present, any such features shall conform to the relevant requirements in EN 1176-1, e.g. entrapment. Central supporting posts on spiral slides may be used in the free space. For open spiral slides, the height of the free space shall be 1 000 mm minimum (see EN 1176-1:2017, 4.2.8.2.3). In the case of multi-track slides, the free spaces may overlap.	Sufficient free space is given. Not such type. Not such type. Not such type.	P ☒ F ☐ N/A ☐ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 66 von 68

Test report no.:

Page 66 of 68

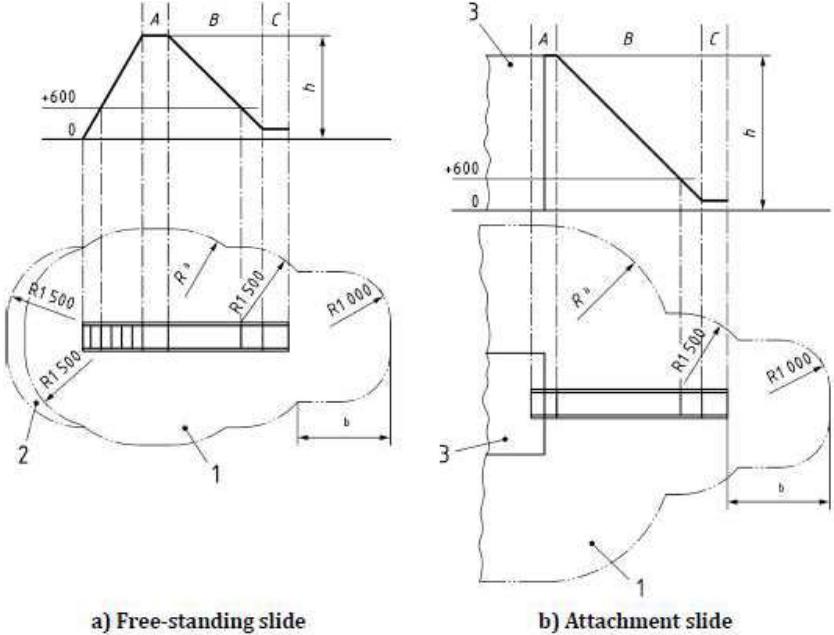
Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
	 a) Non-tunnel slide b) Tunnel slide Key 1 space occupied by the equipment 2 free space Figure 8 — Examples of the free space of slide		
4.8	Impact area Different to the requirements given in EN 1176-1, the impact area shall be provided to a distance of at least 1 000 mm from the outer edge of the run-out section of the slide. End corners can be rounded off with a radius of maximum 1 000 mm (see Figure 9). The impact area for type 1 and a sliding section less than 1 500 mm shall be provided to a distance of at least 1 500 mm beyond the required run-out section. If the slide section is more than 1 500 mm, the impact area shall be provided to a distance of at least 2 000 mm beyond the required run-out section and 1 000 mm beyond the end of the required run-out section for type 2 (see Figure 9). The surface of the impact area around the run-out section shall have an adequate level of impact attenuation at least equivalent to a free height of fall of 1 000 mm. The impact area shall be provided to a distance of at least 1 000 mm around the run-out section.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒

Prüfbericht-Nr.: CN255EQ7 001

Seite 67 von 68

Test report no.:

Page 67 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements - Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
	Dimensions in millimetres  a) Free-standing slide b) Attachment slide Key A starting section B sliding section C run-out section 1 impact area 2 impact area surface with no test requirement (see EN 1176-1:2017, 4.2.8.5.3) 3 play structure h free height of fall Ra extent of the falling space depending on free height of fall b depending on the type of run-out section/length sliding section Figure 9 — Impact area of slides		
4.9	Tunnel and mixed tunnel slides		
4.9.1	Clearance Enclosed sections of tunnel slides shall have a minimum internal height of 750 mm, when measured perpendicular to the sliding surface, and a minimum internal width of 750 mm.	No tunnel slide.	P ☐ F ☐ N/A ☒ N/T ☐
4.9.2	Position Tunnel sections shall start at least at the end of the starting section and shall not extend into the run-out section. Tunnel sections shall be continuous over their whole length.	No tunnel slide.	P ☐ F ☐ N/A ☒ N/T ☐

Prüfbericht-Nr.: CN255EQ7 001

Seite 68 von 68

Test report no.:

Page 68 of 68

Absatz Clause	Anforderungen - Prüfungen / Requirements – Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
5	Test reports Test reports shall be in accordance with EN 1176-1:2017, Clause 5, in addition to the following: a) test report regarding compliance with this document; b) proof of conformity with the relevant requirements of EN 1176-1 and EN 1176-3; c) the number and date of this European Standard, i.e. EN 1176-3:2017.	Informative.	P ☒ F ☐ N/A ☐ N/T ☐
6	Marking Slides shall be marked in accordance with EN 1176-1:2017, Clause 7. Marking shall be positioned on the slide in a location that will be visible when erected on site.	Not requested by client.	P ☐ F ☐ N/A ☐ N/T ☒
A	Annex A (informative) A–deviations	Informative.	-
B	Annex B (informative) Background information and rationale regarding limiting straight sliding sections	Informative.	-

--- Ende des Prüfberichts / End of Test Report ---