



SLOVENSKI STANDARD
oSIST prEN ISO 23659:2021
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Športni in rekreacijski pripomočki - Trampolinski parki - Varnostne zahteve
(ISO/DIS 23659:2021)

Sports and recreational facilities - Trampoline parks - Safety requirements (ISO/DIS 23659:2021)

Sport- und Freizeitanlagen - Trampolinparks - Sicherheitstechnische Anforderungen (ISO/DIS 23659:2021)

Installations sportives et récréatives - Parcs trampolines - Exigences de sécurité (ISO/DIS 23659:2021)

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European foreword

This document (prEN ISO 23659:2021) has been prepared by Technical Committee CEN/TC 136 “Sports, playground and other recreational facilities and equipment”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

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Introduction

A trampoline park is a venue with multiple trampolines and/or trampoline courts used separately or in conjunction with other apparatus or features such as high ropes, climbing walls or other adventure equipment. Trampoline parks are geared towards a very heterogeneous target audience in terms of equipment and operation. This target audience includes adults, young people and younger children for whom some trampoline parks offer completely new but mostly intuitive movement experiences.

As such trampoline parks offer a wide range of social, special/additional needs, recreational and sport-based activities, including:

- Space to have fun with a wide range of physical and play experiences;
- A gathering point fostering interactions and connections between all age groups;
- Activities which improve physical and mental health;
- Opportunity for all age groups to learn how to manage risks in challenging and engaging environments; and
- Cater for the adventurous in their search for excitement in a managed context.

Trampoline parks can make a significant contribution towards reducing inactive behaviour, e.g. as a distraction from electronic entertainment and mobile devices. Trampoline parks are very appealing and allow a large number of children, adolescents and adults to have fun, be active and take on sporting challenges. With obesity increasing world-wide, trampoline parks encourage children, adolescents and adults to undertake intense cardio exercise. Apart from the cardio benefits, users improve many physical skills such as general motor skills, balance, coordination, bouncing ability and endurance. Regular trampolining strengthens bones and the skeletal-muscular structure, and the cyclical loading between 0 to 6 G-force allows the muscles to pump toxins within the lymphatic system.

Although trampoline Parks are managed environments, like other physical activities, trampoline use involves the risk of injury. The most serious risks involved in any trampolining activity are spinal and neck injuries. Trampolines in trampoline parks are designed, built and used in different ways compared with backyard trampolines and gymnastic trampolines, leading to significant differences in risks. In trampoline parks the most frequent injury mechanism is landing awkwardly, resulting in both minor and more severe injuries such as fractures.

Fatal and serious injuries with life-lasting disabilities are reported among both children and adult and experience has shown that adolescents and adults are more likely to perform high risk manoeuvres. There have been reported fatalities that have resulted from trampoline park activities worldwide.

Incorrectly performed acrobatic jumps and failed landings may lead to serious neck and spine injuries.

Risk-taking is an essential feature of trampoline parks unlike passive activities like a roller coaster, the way users interact with the equipment has a direct correlation to safety. Trampoline parks aim to offer its users the chance to encounter acceptable risks as part of a stimulating, challenging and controlled environment. Trampoline parks should balance the need to offer risk and the need to keep users safe from serious harm.

A high percentage of trampoline park users are children. Children benefit from and develop knowledge and skill by experimenting on, equipment and need to experientially learn to understand risk. This can lead to bumps and bruises and even occasionally a broken limb. The aim of this standard is first and foremost to prevent accidents with a disabling or fatal consequence, and secondly to lessen serious consequences caused by the occasional mishap that inevitably will occur in children's pursuit of expanding their level of competence, be it socially, intellectually or physically.

This document aims to eliminate where possible and reduce foreseeable risks to a tolerable level for all users by specifying the minimum design and operational requirements for trampoline parks. The existence of and adherence to this document will not prevent all injuries. Trampoline use inherently involves the risk of injury, particularly if the equipment is used or supervised improperly.

In work safety, there is a recognized hierarchy of hazard control measures, based on the principle that hazards should be removed by "engineering out" and that personal protective equipment is used and safety information is the last measure. For trampoline parks, potential risks can be reduced by manufacturers and operators. This can be achieved through design, manufacture, supervision, training, maintenance, instructions, and tailored safety information for the heterogeneous users. Where hazards and risks cannot be eliminated, they need to be reduced to tolerable level based on updated technical expertise, continuous risk management, appropriate operation, maintenance and inspection.

This standard intends to reflect the range of trampoline park concepts found on the market, from kids parks to (areas in) trampoline parks aimed at target groups with high gymnastic demands and prior knowledge.

This standard intends to meet the following principles:

- To set a general framework for design and operating conditions;
- To not restrict the manufacturer's construction freedom;
- To allow and encourage innovation;
- To provide a direction for future developments for existing and new trampoline parks;
- To be easy to use; and
- To not lose reference to current market solutions.

This standard identifies areas of risk relating to equipment, operation and use of trampoline park equipment, and aims to reduce risk by taking suitable measures. However, when applying this standard one should remain aware it is not only the type of equipment that affects an accident, it is the way in which equipment is used and how a trampoline park is operated. To safely operate a trampoline park, a suitable and sufficient risk-benefit management framework is needed to assess the severity of consequences and likelihood of occurrence, together with the explicit consideration of the benefits of the assessment subject.

In drafting this Standard, the Committee was cognisant of finding a balance between the known hazards found within trampoline parks and the benefits to be obtained from their use. The Committee also recognized that they had a duty of care to protect trampoline park users from hazards that may not be obvious to the user. With these factors in mind, the Committee agreed that the Standard should aim to provide reasonable requirements to minimize the hazards known to cause injury.

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Sports and recreational facilities — Trampoline parks — Safety requirements

1 Scope

This document applies to trampoline parks and trampoline park areas within multi activity parks. This also includes landing areas such as airbags and foam pits.

This document specifies safety requirements for the design, construction, inspection and maintenance of trampoline parks and their components.

This document also specifies minimum operational requirements to ensure an appropriate level of safety and service when used for recreational, training or educational purposes.

This document is intended for use by trampoline park manufacturers, installers, operators, inspectors and enforcement bodies.

This document does not cover:

- a) General building regulations;
- b) fire regulations;
- c) planning regulations;
- d) water testing;
- e) food and drink provision;
- f) non-trampoline activities e.g. artificial climbing, parkour, obstacle courses and miscellaneous future activities;
- g) chemical composition of components;
- h) outdoor trampoline parks;
- i) equipment according to EN 1176.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 913:2008, *Gymnastic equipment — General safety requirements and test methods*

EN 913:2018, *Gymnastic equipment — General safety requirements and test methods*

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

EN 1177:2018, *Impact attenuating playground surfacing — Methods of test for determination of impact attenuation*

EN 12503-1, *Sports mats — Part 1: Gymnastic mats, safety requirements*

EN 12503-2:2016, *Sports mats — Part 2: Pole vault and high jump mats, safety requirements*

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EN 12572-2, *Artificial climbing structures — Part 2: Safety requirements and test methods for bouldering walls*

EN 13219:2008, *Gymnastics equipment — Trampolines — Functional and safety requirements, test methods*

EN 13814, *Fairground and amusement park machinery and structures — Safety*

EN 14960-1:2019, *Inflatable play equipment — Part 1: Safety requirements and test methods*

EN 15312:2007+A1:2010, *Free access multi-sports equipment — Requirements, including safety test methods*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1**accident**

event that occurs unexpectedly and unintentionally and which damages something or injures someone

3.2**activity area**

defined zone within the trampoline park for physical activity

Note 1 to entry: There can be one or more activity areas in a trampoline park, for example: Young children area, basic area and advanced area

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3.3**activity**

features, exercises and sessions provided in an activity area of a trampoline park

Note 1 to entry: An activity is something that a user can do/practise and/or take part in.

3.4**air bag**

inflatable installation that provides an area of protection capable of dissipating the kinetic energy of one or more persons simultaneous falling from not more than a specified height onto the defined safe landing zone

3.5**as-built drawings**

a pack of drawings showing the as-built layout of the trampoline park allowing the operator to readily identify any bed or other part, enabling spares or replacements to be ordered accurately

3.6**bed**

<trampoline> material surface of a trampoline that a user bounces on

3.7**capacity**

maximum number of users for which the (activity area of the) trampoline park has been designed to accommodate

Note 1 to entry: It does not assume that the entire capacity is bouncing simultaneously.

3.8 user

person taking part in activities in a trampoline park

Note 1 to entry: Example of Users: Young children, other children, children's accompanying adults and other adults. Staff members are not Users.

3.9 young child

child below 6 years

3.10 accompanying adult

an adult who accompanies a child under the age of 18 years

3.11 competent person

person, trained and qualified by knowledge and practical experience, and provided with the necessary instructions to enable the required task(s) to be carried out correctly

3.12 supervision

management of and interaction with users for ensuring that the users follow the rules and safety instructions

3.13 supervisor

competent person who performs supervision

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3.14 staff

supervisors and other employees (e.g. coaches)

3.15 containment system

material used to contain the user and other materials to an area

Note 1 to entry: The containment system can be manufactured from a material such as netting, PVC or impact attenuation material designed to assist in preventing users and other projectiles from passing out of the activity area.

3.16 supervisor

employee that has responsibility for managing the users in the trampoline park

Note 1 to entry: This includes e.g. interacting and taking action in case of risky behaviour.

3.17 designer

person or company that designs the trampoline park equipment

ISO/DIS 23659:2021(E)**3.18****dismount pit**

area of soft landing onto or into which a user is supposed to, or expected to, dismount into

Note 1 to entry: Dismount pits can be either air bags or foam pits.

Note 2 to entry: Dismount pits function as landing surface for an activity that ends in the pit.

3.19**novelty pit**

area of soft landing onto or into which a user is supposed to, or expected to, fall

Note 1 to entry: Novelty pits function as impact attenuating surface for an activity above the pit.

3.20**emergency action plan (EAP)**

document that gives specific instructions on the actions to be taken by all employees in the event of an emergency

3.21**safety net**

net supported by a border rope, other supporting elements or a combination of these, designed to catch persons falling

3.22**mesh size**

distance between two knots or connections of mesh rope, measured from the centre to the centre of these connections

3.23**test mesh**

mesh which is worked into the safety net which can be removed to determine any deterioration due to aging without impairing the performance of the net

3.24**framework**

structure to which trampoline components are attached

3.25**hazard**

something with the potential to cause harm

3.26**horizontal bouncing**

where the users' body centre line is parallel to the trampoline bed

Note 1 to entry: See Figure 1 which illustrates horizontal bouncing.

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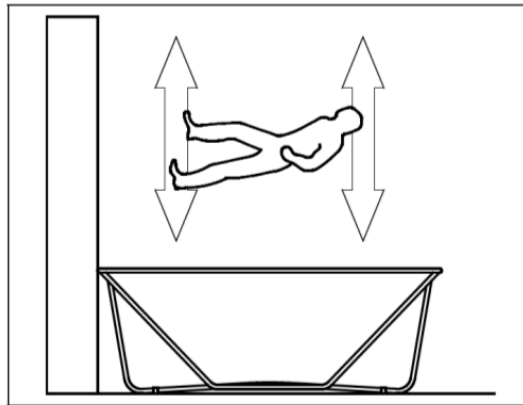


Figure 1 —Horizontal bouncing

3.27

incident

event that has the potential to cause harm

3.28

inspector

competent person (3.11) or company who inspects the trampoline park

3.29

installer

person or company that installs trampoline park equipment

3.30

manufacturer

person or company that fabricates trampoline park equipment

3.31

non-trampoline activity area

zone within the trampoline park that contains devices for physical activity other than defined trampolines

3.32

usage and maintenance manual

manual provided by the designer and/or manufacturer on how to safely use and maintain the equipment

3.33

operator

person, entity or organization that is responsible for the maintenance/operation of a trampoline park

3.34

padding

material used to attenuate the effect of impact with a hard surface