
**Sports and recreational facilities —
Trampoline parks — Safety
requirements**

*Installations sportives et récréatives — Parcs de trampolines —
Exigences de sécurité*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 83, *Sports and other recreational facilities and equipment*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 136, *Sports, playground and other recreational facilities and equipment*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Trampoline parks offer a wide range of social, recreational and sport-based activities and can be aimed towards people of varying ages and skill levels. Risk-taking is a feature of trampoline parks. Trampoline parks aim to offer users the chance to encounter acceptable risks as part of a stimulating, challenging and controlled environment. As such they have the responsibility to balance the need to offer risk and the need to keep users safe from serious harm.

The existence of and adherence to this document will not prevent all injuries. Trampoline use has an inherent risk of injury, particularly if the equipment is used or supervised improperly. A high percentage of trampoline park users are children. Children benefit from, and develop knowledge and skill by, experimenting on equipment.

This document aims to define requirements that minimize the likelihood of serious and fatal accidents while allowing users, especially children, to expand their level of competence, socialize and enjoy themselves.

The most serious risks involved in any trampolining activity are spinal and neck injuries that can arise from incorrectly performed actions and failed landings. Experience has shown that adolescents and adults are more likely to perform high-risk actions. In trampoline parks the most frequent injury mechanisms are uncontrolled landings and misjudgement of one's own capabilities, resulting in both minor and more severe injuries.

For trampoline parks, potential risks can be reduced through construction (design, manufacture and installation) and operation (supervision, staff training, maintenance, instructions and continuous risk management etc.). Ongoing work to identify possible risks and injury scenarios is essential to ensure that all critical risks are mitigated and that all reasonable safety measures are established in the form of safety policies, safety procedures, safety information to users, staff education, etc.

This document aims to:

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- reflect the range of trampoline park concepts found on the market, from parks for children to areas aimed at target groups with high gymnastic demands and prior knowledge;
- set a general framework for design and operating conditions;
- prevent accidents with a disabling or fatal consequence;
- not restrict the manufacturer's construction freedom;
- not to restrict the operator's operational freedom;
- allow and encourage innovation;
- provide a direction for future developments for existing and new trampoline parks.

The committee 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 document should aim to provide requirements to minimize the hazards known to cause injury.

This document is the result of an extensive process with a large group of experts from 3 continents that was finalized under COVID-19 conditions. It has proven challenging to come to a document that allows for all cultural and legal differences, since around the world similar installations are operated differently. This document is hesitant to set requirements that limit or block nonconventional-but-safe methods of operation. In applying this document, the legal and social conventions of the country in which the trampoline park is operated should be followed.

Sports and recreational facilities — Trampoline parks — Safety requirements

1 Scope

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

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 and procedures covered by the referenced documents listed in [Clause 2](#);
- j) general aspects of work safety.

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 913:2018+A1:2021, *Gymnastic equipment — General safety requirements and test methods*

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

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

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

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

EN 13814-1, *Safety of amusement rides and amusement devices – Part 1: Design and manufacture*

EN 14960-1, *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*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

ISO 1421, *Rubber- or plastics-coated fabrics — Determination of tensile strength and elongation at break*

ISO 1806, *Fishing nets — Determination of mesh breaking force of netting*

ISO 2411, *Rubber- or plastics-coated fabrics — Determination of coating adhesion*

3 Terms and definitions

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

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

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

3.1 trampoline park

venue with multiple *trampolines* (3.2) and/or trampoline courts

Note 1 to entry: Trampoline parks are offered both stand-alone and in conjunction with other (active) leisure activities.

3.2 trampoline

construction consisting of a frame, impact attenuation, trampoline bed and suspension system

3.3.1 park trampoline

fixed device that a user bounces on with a *performance index* (3.4) ≤ 95

3.3.2 performance trampoline

fixed device that has the potential of generating a greater height of rebound than a *park trampoline* (3.3.1) with a *performance index* (3.4) > 95

3.4 performance index

numeric value which describes the level of performance of a *trampoline* (3.2) in terms of achievable jump height

3.5 framework

structure to which trampoline components are attached

3.6 padding

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

3.7 suspension system

material used to provide bounce to a trampoline bed

EXAMPLE Springs, rubber cables etc.

3.8**suspension system protector**

material used to assist in protecting the user from entrapment/contact with the *suspension system* (3.7)

3.9**feature**

specific equipment or combination of equipment offered as an attraction

Note 1 to entry: Examples of typical features in a trampoline park: dodge ball court, basketball court, trampoline court, trampoline with dismount foam pit, park trampoline, performance trampoline, performance wall, jump-tower with airbag, etc.

3.10**dismount device**

area of impact attenuation material into which a user shall actively jump from a piece of equipment

Note 1 to entry: Dismount devices can be, for example, air bags or foam pits.

3.11**walk-the-wall**

wall used in combination with trampoline activity

3.12**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 specified landing zone

3.13**containment system**

methods used to contain the *user* (3.24) and materials to a *feature* (3.9) in the park

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.

3.14**redundant barrier system**

secondary safety measure under or behind a *trampoline* (3.1) that helps passively contain the *user(s)* (3.24) to minimize the *risk* (3.45) for the user in case of failure of the trampoline bed

3.15**mesh size**

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

3.16**activity area**

specified 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, park trampoline area, performance trampoline area.

3.17**young children area**

area that is designated by the *operator* (3.32) as an area specifically for children under 6 years of age either permanently or for specific *session(s)* (3.19)

3.18**non-trampoline activity area**

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

3.19 session

allotted time period devoted to an event or *activity* (3.20)

Note 1 to entry: Examples of sessions: young children takeover, fitness classes, dodgeball tournaments, etc.

3.20 activity

pursuit that a user or a group of users does on one or more specific *features* (3.9)

Note 1 to entry: Examples of typical activities in a trampoline park: play dodgeball, play basketball, bounce on trampoline court, bounce from trampoline to foam pit, jump from platform to foam pit, bounce on performance trampoline, etc.

3.21 action

physical movement

Note 1 to entry: Examples of typical actions in a trampoline park: plain vertical bouncing, handspring, somersault, horizontal bouncing, etc.

3.22 horizontal bouncing

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

Note 1 to entry: See [Figure 1](#) which illustrates horizontal bouncing.

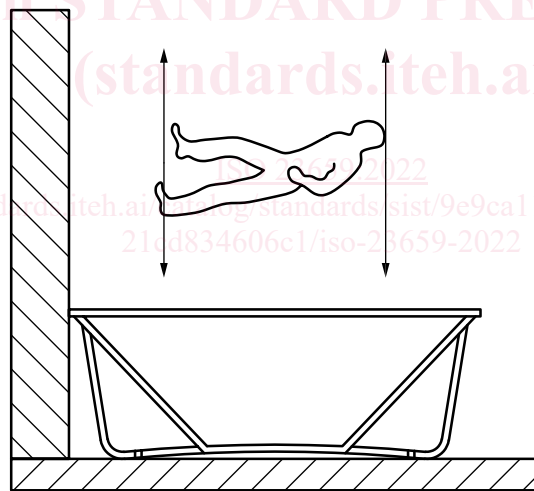


Figure 1 — Horizontal bouncing

3.23 vertical bouncing

jumping-activity where a user's body centre line is perpendicular to the trampoline bed

Note 1 to entry: See [Figure 2](#) which illustrates vertical bouncing.

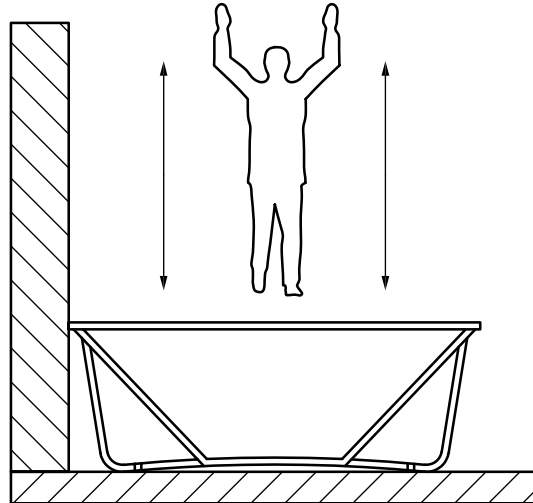


Figure 2 — Vertical bouncing

3.24

user

person taking part in *activities* (3.20) in a trampoline park

3.25

user group

subset of intended users who are differentiated from other intended users by factors such as age, culture or expertise that are likely to influence usability

[SOURCE: ISO/IEC 25062:2006, 4.7]

Note 1 to entry: Examples of user groups:

- persons within a certain age interval, e.g. young children;
- persons with a certain skill level;
- persons with certain disabilities;
- persons with certain physical/mental conditions;
- a visiting school class;
- participants in a birthday party session;
- participants in a company kickoff session;
- participants in a workout session.

3.26

young child

child below 6 years

3.27

accompanying person

individual who holds a higher duty of care for the child(ren) or vulnerable persons they are attending with

3.28

staff

persons who work for and within an organization

[SOURCE: ISO 29995:2021, 3.2.12]

3.29

supervisor

competent person (3.41) 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.

3.30

supervision

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

3.31

supervision ratio

number of *supervisors* (see 3.29) to *users* ($x:y$) (3.24)

3.32

operator

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

3.33

designer

person or company that sets out and engineers the trampoline park equipment and/or the layout of the trampoline park *activities* (3.20)

3.34

installer

person or company that erects the trampoline park

3.35

manufacturer

person or company that fabricates trampoline park equipment

3.36

as-built drawings

pack of drawings showing the as-built layout of the trampoline park allowing the *operator* (3.32) to readily identify any bed or other part, enabling spares or replacements to be ordered accurately

3.37

usage and maintenance manual

document provided by the *designer* (3.33) and/or *manufacturer* (3.35) on how to safely handle and operate the equipment

3.38

calculated trampoline bed height

total vertical trampoline bed deflection due to forces generated by a person with the maximum weight allowance given by the manufacturer and a dynamic factor of 3 (*park trampoline*, see 3.3.1) or 4,5 (*performance trampoline*, 3.3.2)

Note 1 to entry: Test procedure according to EN 13219:2008, 5.3.

3.39

free travel

space under the suspension in landing zones of foam pits free of any obstruction when in use

3.40

capacity

maximum number of users for which the (*activity area* (3.16) of the) trampoline park has been designed to accommodate

3.41**competent person**

person who has acquired thorough training, qualifications or experience, or a combination of these, the knowledge and skills enabling that person to perform a specific task

3.42**inspector**

competent person (3.41) or company who evaluates conformity to the requirements

3.43**emergency action plan**

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

3.44**accident**

event that occurs unexpectedly, suddenly and unintentionally and that damages something or injures someone

3.45**risk**

likelihood and severity of hazardous events

Note 1 to entry: This is a simplification of the ISO Guide 73:2009 definition tailored to the safety field.

3.46**hazard**

source of potential harm

[SOURCE: ISO Guide 73:2009, 3.5.1.4]

3.47**incident**

event or occurrence, which can, but does not necessarily, create a risk of harm, including possible risks due to shearing, crushing, falling, impact, trapping, fire, electric shock, exposure to weather etc.

[SOURCE: ISO/TS 25740-1:2011, 3.13]

3.48**near miss**

event which could have, but did not, lead to an injury

3.49**head injury criterion**

measure of the severity of a head injury likely to arise from an impact

3.50**free height of fall**

greatest vertical distance from the clearly intended body support to the impact area below

[SOURCE: EN 1176-1:2017, 3.7; modified: without the note]

3.51**critical fall height**

maximum *free height of fall* (3.49) for which a surface will provide an acceptable level of impact attenuation

[SOURCE: EN 1176-1:2017, 3.31; modified: without the note]

3.52

risk assessment

overall process of risk identification, risk analysis and *risk evaluation* (3.53)

[SOURCE: ISO Guide 73:2009, 3.4.1]

3.53

risk evaluation

process of comparing the results of risk analysis with risk criteria to determine whether the risk and/or its magnitude is acceptable or tolerable

[SOURCE: ISO Guide 73:2009, 3.7.1]

3.54

risk reduction

process of identifying and implementing (a) control measure(s) that eliminate or reduce the likelihood of an incident occurring due to the identified hazard/hazardous situation and/or the potential severity of injury that could occur due to the identified hazard/hazardous situation, to a tolerable level

3.55

risk reporting

form of communication intended to inform particular internal or external stakeholders by providing information regarding the current state of risk and its management

[SOURCE: ISO Guide 73:2009, 3.8.2.3]

3.56

site-specific risk assessment

process of identifying hazards and associated risks in a given facility

3.57

risk management process

systematic application of management policies, procedures and practices to the activities of communicating, consulting, establishing the context, and identifying, analyzing, evaluating, treating, monitoring and reviewing risk

[SOURCE: ISO Guide 73:2009, 3.1]

3.58

design risk assessment

documented evaluation of the *risk* (3.45) to users inherent in the activities, and measures incorporated in the design and manufacturing to mitigate the risk, including identification of any residual risk that the operator should address in its standard operating procedures and policies

3.59

site-specific risk management process

risk management process (3.57) applicable for a certain site/facility

3.60

risk identification

process of finding, recognizing and describing *risks* (3.45)

[SOURCE: ISO Guide 73:2009, 3.5.1]

4 Requirements of construction

4.1 General

NOTE 1 The designer, manufacturer, installer and operator of a trampoline park can be the same or different entities.

The designer and operator (to the extent that they are involved in the design of the trampoline park) shall be responsible for:

- a) providing a layout that reduces the risk to users of the trampoline park;
- b) undertaking a design risk assessment of the layout of the trampoline park;
- c) risk reduction by choice of design specification; and
- d) identifying any residual risks to users of the trampoline park that have not been designed out through the design specification.

Additionally, the manufacturer, designer and operator may take environmental aspects into consideration (see [Annex C](#)).

Whenever there is playing field equipment or other sports equipment used in conjunction with trampolines, the relevant international or national standard shall be considered.

The designer shall design the trampoline park in a way that activity areas can be supervised in line with [Clause 5](#).

NOTE 2 The designer and manufacturer are not responsible for designing out all potential risks to users from undertaking trampoline park activities.

4.2 Usage and maintenance manual

The manufacturer shall ensure that a usage and maintenance (U&M) manual for all equipment delivered is available for the operator.

The manufacturer shall provide a U&M manual with the trampoline park equipment in an appropriate language, agreed by both parties.

The U&M manual shall include the following details, as a minimum:

- a) capacity – maximum number of users, excluding employees and spectators, for which the trampoline park or an area of the park has been designed to accommodate in accordance with [4.11](#);
- b) number – people per trampoline bed;
- c) range of user weight;
- d) usage instructions on how to use the trampoline park equipment in a proper way;
- e) repairs, replacements and maintenance – information on how to undertake repairs and maintenance that can be completed by the operator;
- f) opening checks – details of the checks to be carried out before each day's sessions in the trampoline park in accordance with [5.11.2 b\)](#);
- g) periodic maintenance – details of maintenance inspections and checks that the manufacturer recommends the operator carries out on a regular basis and their suggested frequency;
- h) annual inspection – details of what the manufacturer recommends to be inspected;
- i) design risk assessment (see [3.57](#)) – a copy of the design risk assessment highlighting the designer's and manufacturer's assessment of the risk to users (see [5.5](#));
- j) as-built drawings (see [3.36](#)) which shall include falling space and impact area and respective dimension;
- k) all safety-relevant information from the certifier of the park equipment (e.g. airbag, trampoline) for the operator;