
Varnost naprav in opreme v zabaviščnih parkih - 2. del: Delovanje, vzdrževanje in uporaba

Safety of amusement rides and amusement devices - Part 2: Operation, maintenance and use

Sicherheit von Fahrgeschäften und Vergnügungsanlagen - Teil 2: Betrieb, Instandhaltung und Gebrauch

Sécurité des manèges et des dispositifs de divertissement - Partie 2 : Installation, maintenance et exploitation

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Igrišča

Playgrounds

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**Safety of amusement rides and amusement devices - Part
2: Operation, maintenance and use**

Sécurité des manèges et des dispositifs de
divertissement - Partie 2 : Installation, maintenance et
exploitation

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Vergnügungsanlagen - Teil 2: Betrieb, Instandhaltung
und Gebrauch

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (prEN 13814-2:2026) has been prepared by Technical Committee CEN/TC 152 “*Fairground and amusement park machinery and structures — Safety*”, the secretariat of which is held by UNI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 13814-2:2019+A1:2024.

In comparison with EN 13814-2:2019+A1:2024, this document has been updated with the following main changes. The definitions have been reviewed and aligned with part 1. Revised terms for persons in a theme park or fairground have been implemented. Updated reference to wind speed measurement has been added to match modified content in part 1. Requirements to keep both DRA and OURA up to date following modifications have been added. Conditions have been added regarding the restart of a device following an unscheduled cessation of activity. A new statement regarding the checking of restraints to manufacturer’s instructions has been added. A reference to prEN 13814-3:2026 has been made regarding functional testing.

EN 13814 consists of the following parts, under the general title *Safety of amusement rides and amusement devices*:

- *Part 1: Design and manufacture*
- *Part 2: Operation, maintenance and use*
- *Part 3: Requirements for inspection during design, manufacture, operation and use*

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prEN 13814-2:2026 (E)

1 Scope

This document specifies the minimum requirements necessary to ensure the safe maintenance, operation, inspection and testing of amusement ride and amusement devices which are intended to be installed both repeatedly without degradation or loss of integrity, and temporarily or permanently in fairgrounds and amusement parks or any other locations.

Grandstands, construction site installations, scaffolding, removable agricultural structures, simple coin operated children's amusement devices, carrying up to three children, and recreational devices like waterslides or summer toboggan runs, playground equipment, rope courses, climbing wall, inflatable, trampolines, swimming pool equipment (this list is not exhaustive) are not covered by this document.

NOTE In terms of workers' health and safety, national regulations can apply.

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 12385 (all parts), *Steel wire ropes — Safety*

prEN 13814-1:2026, *Safety of amusement rides and amusement devices — Part 1: Design and manufacture*

EN IEC 60947-3, *Low-voltage switchgear and controlgear - Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units*

EN ISO 2307, *Fibre ropes - Determination of certain physical and mechanical properties (ISO 2307)*

EN ISO 9554, *Fibre ropes - General specifications (ISO 9554)*

EN ISO 13857, *Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857)*

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:

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

3.1

amusement device

amusement ride (3.3) and any arrangement of equipment that produces the desired effect of amusement or entertainment when the *user* (3.58) moves through it or on it primarily by their own action

3.2

amusement device log

book and/or electronic data file containing all the necessary information about the use and history of any *amusement device* (3.1)

3.3

amusement ride

equipment that is designed to entertain the *riders* (3.43) during motion including the consequence of biomechanical effect

Note 1 to entry: See Annex B for provisions prior to use.

3.4

attendant

trained person appointed to work under the supervision of an *operator* (3.31), to assist in the operation of an *amusement device* (3.1) available for use by the *guests* (3.21)

3.5

behaviour

non-passive physical activity or movement made by a *guest* (3.21)

Note 1 to entry: All reactions to internal and external stimuli also apply.

3.6

boarding rider

rider (3.43) who is transiting from the waiting area to the *amusement ride* (3.3)

3.7

child

person aged from birth to 14 years

Note 1 to entry: In the amusement field it is helpful to consider children's physical, psychological, social and educational development with relation to their age.

3.8

children ride

amusement ride (3.3) solely designed for the use by children as defined by the *designer* (3.14)

3.9

clearance envelope

space which adequately reduces the risk of harmful contact of *riders* (3.43) with objects

3.10

competent person

person who can demonstrate that he has acquired through training, qualifications or experience, or a combination of these, the knowledge and skills enabling that person to perform a specified task

Note 1 to entry: For more details, see Annex A.

3.11

controller

person or organisation having overall control of an *amusement device* (3.1)

Note 1 to entry: This may be either an individual or corporate body owning an *amusement device* (3.1) or the concessionaire or lessee who has been granted control of the *amusement device* (3.1), by the owner, for a specified period.

prEN 13814-2:2026 (E)**3.12****design review**

document detailing the review of all the applicable design documents, to determine the suitability for use of an *amusement device* (3.1)

3.13**design risk assessment****DRA**

document, produced by the *designer* (3.14) as a tool for safe design, within the agreed scope of supply

3.14**designer
engineer**

persons or bodies that are responsible for the design of an *amusement device* (3.1) (or modifications thereof), including, but not limited to establishing and describing the configuration of the *amusement device* (3.1), conducting appropriate risk assessment(s), establishing strength (including fatigue strength), designing and specifying electrical/electronic control systems, defining the acceptable quality level for production, defining inspection criteria and including the publication of the necessary documentation

3.15**exiting rider**

rider (3.43) who is transiting from the *amusement ride* (3.3) to the exit

3.16**fail-safe**

characteristic of a system, component, or device, that upon a failure of one of their elements, the system, component, or device is designed to result in a safe state

3.17**fence**

structure designed to restrict or prevent movement across a boundary without change of elevation

3.18**foreseeable behaviour**

foreseeable misuse and predictable pathological *behaviours* (3.5) (such as anxiety, escape, etc.)

Note 1 to entry: The concept of “reasonably foreseeable” excludes the irrational. The foreseeability of the hazard includes considering the likelihood of the combination of circumstances that are necessary for it to occur. It will be noted that foreseeable situations in which the user’s actions due to a lack of perception of the hazard or an unexpected event, can expose them to an increased risk.

Note 2 to entry: See Fairground and amusement park – Guidance on safe practice, HSG 175, for more information.

3.19**gate**

section of *fence* (3.17) that can be opened to provide access or egress

3.20**guardrail**

rail intended to prevent a *user* (3.58) from falling

3.21**guest**

persons visiting an amusement park or fairground

3.22**handrail**

rail intended to assist the *user* (3.58) to balance

3.23**impact acceleration**

acceleration with duration of less than 200 ms

3.24**initial approval**

design and calculation review process including, verification, examinations and tests executed by the *inspection body* (3.25) before a ride is first made available for guest use

3.25**inspection body**

any organisation capable of carrying out examination, tests and approval of *amusement devices* (3.1)

3.26**machinery component**

component which forms part of an assembly in which at least one component moves (excluding vibration and deformation)

3.27**major modification**

safety-related alteration to the hardware or software of an *amusement device* (3.1), including the introduction of a new *safety-related component* (3.48) or the substitution of a *safety-related component* (3.48), which results in a deviation from the current design specification

3.28**manufacturer**

individual or commercial entity responsible for designing and manufacturing a product with the view to placing it on the market under their own name

Note 1 to entry: Any commercial entity that either places a product on the market under their own name or trademark or modifies a product in such a way that compliance with applicable requirements maybe affected should be considered to be the manufacturer and should assume the obligations of the manufacturer.

3.29**maximum permissible restraint position**

position of the *restraint* (3.40) at which the allowed maximum sized rider is properly restrained

Note 1 to entry: Maximum-sized riders are *riders* (3.43) with any body dimension at the largest intended design parameters. This position does not necessarily ensure smaller *riders* (3.43) are properly restrained.

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3.30

operation and use risk assessment

OURA

document, produced by the *controller* (3.11), that details all of the considered risks inherent during all modes of the amusement device operation and the means taken to mitigate against them

Note 1 to entry: This term is explained in detail in prEN 13814-1:2026, 5.1.3.

3.31

operator

trained person appointed by the *controller* (3.11) to be in charge of the operation of an *amusement device* (3.1) when it is intended to be available for the *guests* (3.21)

3.32

participant

person using an *amusement device* (3.1) which is not an *amusement ride* (3.3)

3.33

permit

authorisation to operate an *amusement device* (3.1) in a particular member state granted by the legally authorised body after successful approval and/or examination

3.34

platform

horizontal or inclined surface raised above the level of an adjacent area

Note 1 to entry: See prEN 13814-1:2026, 5.2.1.2 for maximum slope of platform.

3.35

properly restrained

condition where the *restraint* (3.40) is *retained* (3.41) in the intended position relative to the *rider* (3.43) while in the intended riding position

Note 1 to entry: For individual, adjustable *restraints* (3.40) this may mean close to each rider's body, but in a group lap bar, this may mean close to the largest rider's body. Intended riding position means that the *rider* (3.43) is properly positioned in the rider carrying device, e.g. in a seat with full contact to the seat pan and backrest.

3.36

reach envelope

space, which a *rider* (3.43) can reach during a ride cycle while in the intended riding position

3.37

reasonably foreseeable misuse

use of an *amusement device* (3.1) in a way not intended by the *designer* (3.14), but which can result from readily predictable human *behaviour* (3.5)

Note 1 to entry: prEN 13814-1:2026, Annex F (Guest Behaviour) gives a non-exhaustive list of human behaviours.

3.38

redundancy

application of more than one device or system, or part of a device or system, with the objective of ensuring that in the event of one failing to perform its function another will perform that function

3.39**repair**

restoration of components or assemblies to an acceptable condition

3.40**restraint**

moveable system or device that is intended to inhibit or restrict the movement of the *rider* (3.43) while on the *amusement ride* (3.3)

3.41**retained**

<pertaining to a *restraint* (3.40)> held secure against opening except by intentional action

Note 1 to entry: This can include restraints (for example drop bars) held in place by gravity, detents or other means.

3.42**retention device**

system that is used to secure the *restraint* (3.40) in a retained state

3.43**rider**

person using an *amusement ride* (3.3)

3.44**rider containment**

system in an *amusement ride* (3.3) that accommodates the *rider* (3.43) for the purpose of riding the ride including but not limited to the seats, side walls, walls, or bulkheads ahead of the rider(s), floors, objects within the vicinity of the rider(s), *restraints* (3.40) and cages

Note 1 to entry: In many cases the rider containment is part of the *rider unit* (3.45).

3.45**rider unit****PU**

device in or on which the *rider* (3.43) is conveyed during the ride cycle

Note 1 to entry: Examples for rider units are vehicles, boats, gondolas.

3.46**supervising companion**

person of sufficient age having the authority and knowledge to help decide whether the accompanied person is able to experience the *amusement ride* (3.3) or *amusement device* (3.1) based on information provided by the *controller* (3.11)

3.47**safety-related control system****SRCS**

assembly of components that may be electronic, electric, electro-mechanical, hydraulic, pneumatic or mechanical combined to monitor and control an *amusement device* (3.1) so as to reduce risks to *guests* (3.21)

prEN 13814-2:2026 (E)**3.48****safety-related component**

part or component of an *amusement device* (3.1) on which the safety of the *users* (3.58) is dependent as identified in the *design risk assessment* (3.13) and/or the *operation and use risk assessment* (3.30)

3.49**service**

replacement or replenishment and check on the condition of components, including fluids which are designated to be replaced, replenished and/or checked at specified intervals

3.50**sustained acceleration**

acceleration with duration greater than or equal to 200 ms

3.51**sideshow**

booth or similar enclosed structure containing, shows, activities or games for the entertainment of the *participants* (3.32), where the *guest* (3.21) is not transported in any way by the structure

3.52**spectator**

person in the vicinity of an *amusement device* (3.1)

Note 1 to entry: Typically defined as a person watching the operation of the *amusement device* (3.1) or waiting to gain access to the use the *amusement device* (3.1)

3.53**structural component**

calculated load bearing part which has not been classified as *machinery components* (3.26) by the *designer* (3.14)

3.54**temporarily installed amusement device**

amusement device (3.1) which is designed to be installed and uninstalled, the installation period of which shall not exceed more than 3 months

3.55**theoretical hourly ride capacity (THRC)**

maximum number of *guests* (3.21) that an *amusement ride* (3.3) can theoretically accommodate in one hour under ideal, perfect operating conditions

Note 1 to entry: This calculation assumes no delays, full capacity in each ride vehicle, and continuous loading and dispatch. It is a measure of potential throughput, rather than what is realistically achievable.

3.56**thorough examination**

procedures and investigations necessary for the *inspection body* (3.25) to decide whether the *amusement device* (3.1) can continue to be operated safely, or whether it requires defects to be remedied immediately or within a specified time

3.57**trial run**

proving run of an *amusement device* (3.1) during which no *users* (3.58) are carried