SLOVENSKI STANDARD
SIST EN 913:2019

01-februar-2019

Nadomešča:
SIST EN 913:2009

Gimnastična oprema - Splošne varnostne zahteve in preskusne metode

Gymnastic equipment - General safety requirements and test methods

Turngeräte - Allgemeine sicherheitstechnische Anforderungen und Prüfverfahren

Matériel de gymnastique - Exigences générales de sécurité et méthodes d'essai

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Ta slovenski standard je istoveten z: EN 913:2018

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ICS:

97.220.30 Oprema za dvoranske športe Indoor sports equipment

SIST EN 913:2019 **en,fr,de**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 913

December 2018

ICS 97.220.30

Supersedes EN 913:2008

English Version

Gymnastic equipment - General safety requirements and test methods

Matériel de gymnastique - Exigences générales de sécurité et méthodes d'essai

Turngeräte - Allgemeine sicherheitstechnische Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 22 July 2018.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 913:2018) has been prepared by Technical Committee CEN/TC 136 “Sports, playground and other recreational facilities and equipment”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2019, and conflicting national standards shall be withdrawn at the latest by June 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 913:2008.

This European Standard is one of several standards, each of which deals with a particular type or a particular group of gymnastic equipment. Gymnastic equipment of any type not covered by a relevant European Standard is covered by this general standard.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

The principal changes from the previous edition of EN 913 are as follows:

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a) Scope has been concretised by adding sports equipment;

b) Term “hazard” modified according to EN ISO 12100:2010;

c) Term “risk” added according to EN ISO 12100:2010;

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d) References to relevant European Directives added;

e) Risk of “fire” has been deleted, as it is not relevant for gymnastic equipment;

f) New Subclause 5.1 “Material” added;

g) Requirements regarding entrapment have been harmonized with EN 1176-1:2017;

h) Entrapment requirement for floor fixings has been added;

i) New Subclause 5.7 “Friction and abrasion” added;

j) New Subclause 5.8 “Ergonomics” added;

k) In Clause 6 a reference to the relevant European Standard on Gymnastic equipment was added;

l) New Clause 7 “Manufactures instructions” has been added;

m) Body mass for multiple use has been modified according to CEN ISO/TR 7250-2;

n) New “Bibliography” added.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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1 Scope

This document specifies general safety requirements and test methods for all pieces of gymnastic and sports equipment and for all pieces of equipment for the use of physical education, training and competition, intended for use supervised by a competent person and not specified in other, individual standards and/or federation rules.

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 1991-1-1, *Eurocode 1: Actions on structures - Part 1-1: General actions - Densities, self-weight, imposed loads for buildings*

EN 1991-1-3, *Eurocode 1 - Actions on structures - Part 1-3: General actions - Snow loads*

EN 1991-1-4, *Eurocode 1: Actions on structures - Part 1-4: General actions - Wind actions*

EN 1991-1-5, *Eurocode 1: Actions on structures - Part 1-5: General actions - Thermal actions*

EN ISO 12100:2010, *Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)*

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ISO 6487, *Road vehicles — Measurement techniques in impact tests — Instrumentation*

3 Terms and definitions

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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
hazard
potential source of harm

[SOURCE: EN ISO 12100:2010, 3.6]

3.2
risk
combination of probability of occurrence of harm and the severity of that harm

[SOURCE: EN ISO 12100:2010, 3.12]

3.3
body mass
mass of the person(s) using the equipment

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3.4
static load
load acting on the equipment due to its structure, added weights and pre-stressed components

3.5
dynamic factor
factor to take account of the increase in effective body mass during a dynamic movement

3.6
safety factor
factor intended to cover uncertainties in the body loading and dynamic factor used, and which does not cover allowance for variations in materials and manufacturing processes

3.7
variable load
load due to factors other than the static and body loads

4 Risk assessment

The assessment of risks has been based on EN ISO 12100. Twelve categories of hazard or sources of hazard have been considered relevant to gymnastic equipment. These are as follows:

a) crushing;

b) shearing;

c) cutting and severing;

d) entanglement and trapping;

e) impact;

f) stabbing or puncture;

g) friction and abrasion;

h) insufficient mechanical strength;

i) use of unsuitable material (see Regulation (EC) No 1907/2006);

j) unintended movement, including sliding;

k) unsuitable ergonomic design;

l) wrong or missing information.

NOTE See also Directive 2001/95/EC.

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5 General safety requirements

5.1 Materials

Materials shall be selected and protected such that the structural integrity of the equipment manufactured from them is not affected before the next relevant maintenance inspection.

NOTE 1 The provisions relating to certain materials in this European Standard do not imply that other equivalent materials are unsuitable in the manufacture of multi-sports equipment.

The selection of materials and their use should be in accordance with the appropriate European Standards where applicable.

In the choice of a material or substance for equipment, consideration should be given to the eventual disposal of the material or substance having regard to any possible environmental toxic hazard.

NOTE 2 Information on the identification and classification of such substances can be found in the Regulation (EC) No 1272/2008 (classification, packaging and labelling of dangerous substances and mixtures) as well as in the Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).

5.2 Surface finish

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. All welds shall be smooth. 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 are permitted in non-accessible parts, provided they are free from burrs.

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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.

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Figure 1 shows examples of protection for nuts and bolts and permissible protruding parts. Figure 2 shows examples of non-permissible protruding parts.

This requirement is intended only to prevent injuries caused by unintended contact with components.

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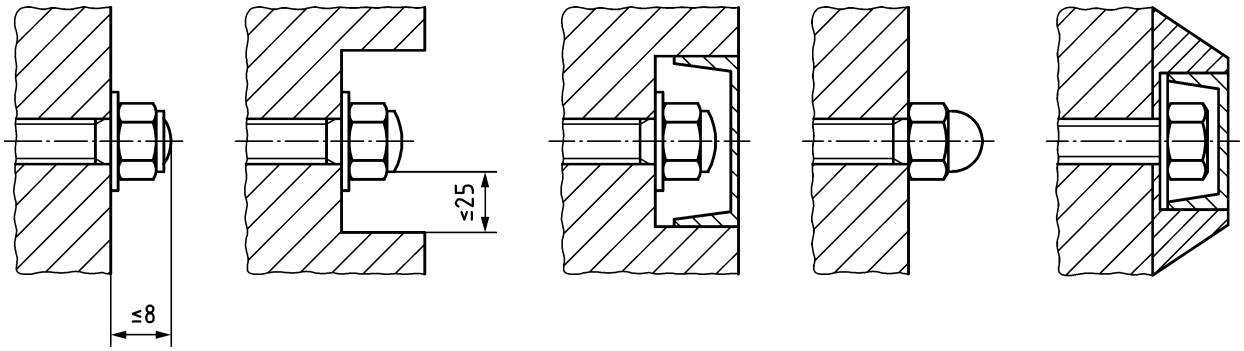
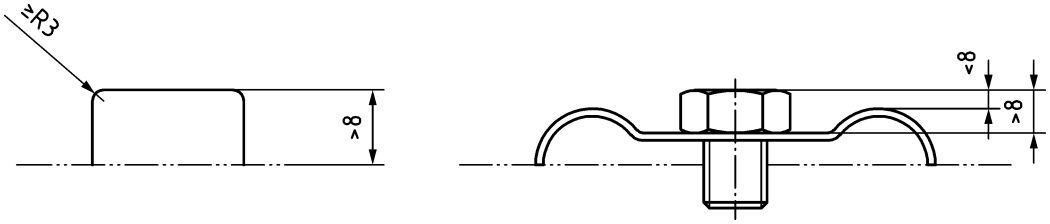
Dimensions in millimetres



a) Examples of protection for nuts and bolts



b) Examples of permissible protruding parts

Figure 1 — Examples of permissible parts

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Dimensions in millimetres

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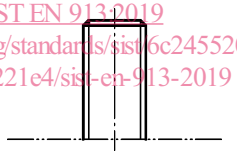

a) Uncovered protruding exterior screw thread

b) Unprotected, overhanging sharp-edged (hard) equipment part

Figure 2 — Examples of non-permissible protruding parts

5.3 Entrapment

5.3.1 Gaps and shearing/crushing points

When in use

— there shall be no openings, gaps and/or shearing/crushing points that can create a danger of head and neck or finger entrapment and

— where components of equipment are able to move relative to each other or to the floor, either by design or through deflection or bending under load, no entrapment point shall be created by such movement.

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These requirements shall be assessed by carrying out a visual inspection and measurement using the methods specified in Annex A.

No danger of head and neck entrapment is considered to exist where the lowest part of the circumference of an opening is less than 600 mm above floor level. Where an item of equipment may be used at different heights or in different orientations, all possible heights and orientations shall be considered.

5.3.2 Transport system

Where a transport system is used, it shall not be possible for the equipment to tip over when loaded at one end with a minimum weight of 75 kg.

When a transport system encounters a floor threshold the mechanism shall not be able to disengage or drop unintentionally.

5.3.3 Floor fixings

Any floor fixings shall be designed in such a way that they will not protrude from the floor level, nor provide openings equal to or greater than 8 mm in diameter, when the equipment is not attached to the floor.

5.4 Stability and strength

5.4.1 General

Unless specified elsewhere in individual equipment standards, verification of the stability and strength of equipment shall be achieved by engineering calculation or by testing in accordance with the procedures specified in Annex B.

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5.4.2 Stability

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For stability testing where the normal action produces a destabilizing force in a horizontal direction, e.g. vaulting, the theoretical horizontal test force shall be calculated using the formula given in B.1.8. The calculation shall give a result which is ≥ 35 % of the self-weight of the equipment or 50 N, whichever is the greater.

Unless specified elsewhere in individual equipment standards, for equipment with unfixed body sections an actual test shall be carried out with a theoretical horizontal test force of 65 % of the theoretical test force calculated according to the formula given in B.1.8, or 50 N, whichever is the greater. Unfixed body sections shall not become separated.

5.4.3 Strength

When tested in accordance with Annex B, equipment shall not collapse or fracture, or show any permanent deformation that would result in an additional safety hazard as described in the standard.

5.5 Adjustment devices

Any adjustment devices shall prevent accidental changes during use of the device or the equipment.

None of the operating levers shall protrude into the user's free space.

This shall be assessed by carrying out a visual inspection and operation of the adjustment device.

5.6 Shock absorption of top padding

When tested in accordance with the method specified in Annex C, the peak acceleration shall not exceed 500 m/s^2, if not specified in other, individual equipment standards.

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5.7 Friction and abrasion

Requirements are related to the specific gymnastic and sports equipment and dealt within the appropriate European Standards (where applicable).

5.8 Ergonomics

Requirements are related to the specific gymnastic and sports equipment and dealt within the appropriate European Standards (where applicable).

6 Marking

All gymnastic equipment shall bear the following marking:

a) number of the relevant European Standard;

b) name, trademark or other means of identification of the manufacturer, retailer or importer;

c) year of manufacture;

d) number of users for which the equipment is intended.

Any other information regarding the intended use are related to the specific gymnastic and sports equipment and dealt within the appropriate European Standards (where applicable).

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7 Manufacturer Instructions

The manufacturer shall provide written instructions for the safe assembly, installation, transportation, storage and maintenance in the appropriate language(s) of the country in which the gymnastic and sports equipment is to be installed and used.

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Further requirements are related to the specific gymnastic and sports equipment and dealt within the appropriate European Standards (where applicable).