SLOVENSKI STANDARD
SIST EN 913:2009

01-januar-2009

Nadomeġļa:
SIST EN 913:1996

Gimnastiļna oprema - Splońne 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 913:2008

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ICS:

97.220.30 Oprema za dvoranske športe Indoor sports equipment

SIST EN 913:2009 **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

November 2008

ICS 97.220.30

Supersedes EN 913:1996

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 27 September 2008.

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 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 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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN 913:2008) 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 May 2009, and conflicting national standards shall be withdrawn at the latest by May 2009.

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

This document supersedes EN 913:1996.

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.

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

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a) Requirements on stability and strength were amended by means of a formula with regard to the differentiation of rigid and sectional gymnastic equipment;

b) Figure 1 was extended with examples of permissible parts;

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c) requirements regarding entrapment were expanded.

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

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1 Scope

This European Standard specifies general safety requirements and test methods for all pieces of gymnastic equipment intended for use supervised by a competent person and not specified in other, individual standards.

This European Standard is not applicable to other sport equipment, playground equipment, stationary training equipment or educational training equipment.

2 Normative references

The following referenced documents are indispensable for the application 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*

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EN ISO 12100-1, *Safety of machinery – Basic concepts, general principles for design – Part 1: Basic terminology, methodology (ISO 12100-1:2003)*

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

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3 Terms and definitions

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

3.1
hazard
source of possible injury or damage to health

3.2
body mass
mass of the person(s) using the equipment

3.3
static load
load acting on the equipment due to its structure, added weights and prestressed components

3.4
dynamic factor
factor to take account of the increase in effective body mass during a dynamic movement

3.5
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

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3.6
variable load
loads due to factors other than the static and body loads

4 Hazard assessment

The assessment of hazards has been based on EN ISO 12100-1. 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;

j) unintended movement, including sliding;

k) unsuitable ergonomic design;

l) fire;

m) wrong or missing information.

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5 General safety requirements

5.1 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.

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.

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

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

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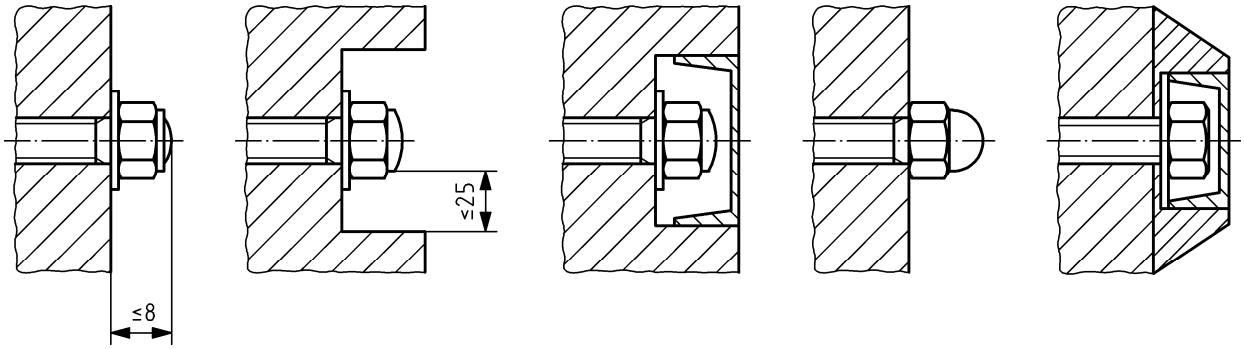
Dimensions in millimetres



a) Examples of protection for nuts and bolts

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b) Examples of permissible protruding parts

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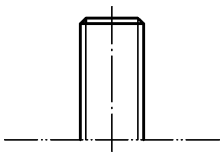
Figure 1 — Examples of permissible parts

Dimensions in millimetres



a) Uncovered protruding exterior screw thread

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

Figure 2 — Examples of non-permissible protruding parts

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5.2 Entrapment

5.2.1 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.

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 must be considered.

These requirements also apply to all parts used during adjustment and transportation of equipment.

5.2.2 Unintentional dropping

Where a transport system is used, it shall not be possible for the equipment to drop when loaded at one end with a minimum weight of 750 N.

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

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5.3 Stability and strength

5.3.1 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.

5.3.2 Stability

For stability testing where the normal action produces a destabilising force in a horizontal direction, e.g. vaulting, the theoretical horizontal test force shall be calculated using the formula given in B.1.7. 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.1.7, or 50 N, whichever is the greater. Unfixed body sections shall not become separated.

5.3.3 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.

5.4 Adjustment devices

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

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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.

5.5 Shock absorption of top padding

When tested in accordance with the method specified in Annex C, the peak acceleration shall not exceed 500 m/s², if not specified in other, individual equipment standards.

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.

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Annex A
(normative)

Determination of entrapment

A.1 Principle

Test probes of specified dimensions are offered to potential entrapment points and a note is made of whether or not they can be inserted.

In situations of doubt when using the probes relating to the tolerance an accurate measurement should be made to ensure the opening is in accordance with the nominal dimension.

All tests shall be performed in the most onerous way.

A.2 Apparatus

Test probes of dimensions as described in Figures A.1 and A.2.

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A.3 Conditioning and test temperature

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Condition the equipment and test probes for a minimum of 3 h at the test temperature of (23 ± 2) °C.

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A.4 Procedure

A.4.1 Head and neck entrapment

A.4.1.1 General

The probe shall be applied with its longitudinal axis perpendicular to the plane of the opening. No rotation of the probe about any axis other than the longitudinal axis is permitted. Translations perpendicular to the longitudinal axis of the probe are allowed. The longitudinal axis of the probe is considered to coincide with the longest axis of the probe's handle.

A.4.1.2 Procedure

A.4.1.2.1 General

Try to insert the cone shaped probe (see Figure A.1) into the opening. If the probe can enter the opening (opening ≥ 110 mm) it shall also pass the opening with its largest dimension (230 mm).

A.4.1.2.2 Partially bound openings

Try to insert the cone shaped probe (see Figure A.1) into the opening. The probe shall not become stuck. If the probe can enter the opening it shall touch the bottom of the opening (see Figures A.3 and A.4).