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Stationary training equipment —

Part 6: Treadmills, additional specific safety requirements and test methods

Équipement d'entraînement fixe —

Partie 6: Tapis de course, exigences spécifiques de sécurité et méthodes d'essai supplémentaires

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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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 the European Committee for Standardization (CEN) (as EN 957-6:2010+A1:2014) and was adopted, without modification other than those given below by Technical Committee ISO/TC 83, *Sports and other recreational facilities and equipment*.

— references to EN documents were replaced with their equivalent ISO standard;

— in Clause 4, the NOTE was changed to body text;

— in 6.1, "comply" changed to "conform";

— in 6.11, in the NOTE, "may" was changed to "might";

— in Clause 9, the footnote was changed to a NOTE;

— minor editorial changes.

This second edition cancels and replaces the first edition (ISO 20957-6:2005), which has been technically revised.

The main changes compared to the previous edition are as follows:

— specifications and definitions amended;

— list of significant hazards added (Clause 4);

— modification of safety requirements and/ or protective measures (Clause 6);

— deletion of the reference to ISO 5904[1)] in 6.11;

— requirements and test methods for the transmission elements and rotating parts amended;

— requirements and test methods for safety stop amended;

1) Withdrawn.

— requirements for the static loading, especially for class S amended;

— requirement for the endurance testing of class I added;

— requirements and test methods for treadmills with front handlebar and side handrails amended;

— requirements for the footrail amended;

— requirements for the permanent marking and test methods of the running surface added;

— requirements and test methods for the acceleration of power-driven treadmills added;

— requirements and test methods for folding treadmills added;

— requirements and test methods for the heart rate control mode added;

— requirements and test methods for noise added;

— requirements for the marking of the maximum lateral position added;

— modification of the testing of endurance (7.8);

— modification of the testing of the accuracy of time, speed and distance indications (7.15);

— requirements for the test report and marking added;

— additional instructions for use extended;

— modification of Figure 1;

— addition of Figure 2;

— modification of Figure 3;

— editorial changes.

A list of all parts in the ISO 20957 series can be found on the ISO website.

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

This document is a type C standard as stated in ISO 12100.

The machinery concerned and the extent to which hazards, hazardous situations and hazardous events are covered are indicated in the scope of this document.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for machines that have been designed and built according to the provisions of this type C standard.

Stationary training equipment —

Part 6: Treadmills, additional specific safety requirements and test methods

1 Scope

This document specifies safety requirements and test methods for treadmills in addition to the general safety requirements and test methods of ISO 20957-1. It is intended that this document is applied together with ISO 20957-1.

This document deals with significant hazards, hazardous situations and events relevant to stationary training equipment used as intended and under the conditions of misuse foreseeable by the manufacturer (see Clause 4).

This document is applicable to power-driven as well as to non-power/manually driven training equipment type treadmills (hereafter referred to as treadmills) with the classes S, H and I and classes A, B and C regarding accuracy.

This document is not applicable to treadmills which are manufactured before it publication.

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 60335-1, *Household and similar electrical appliances — Safety — Part 1: General requirements (IEC 60335-1:2010, modified)*

EN 60601-1, *Medical electrical equipment — Part 1: General requirements for basic safety and essential performance (IEC 60601-1:2005)*

ISO 11201, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections*

ISO 11202, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections*

ISO 12100, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

ISO 12947-1:1998, *Textiles — Determination of the abrasion resistance of fabrics by the Martindale method — Part 1: Martindale abrasion testing apparatus*

ISO 20957-1:2013, *Stationary training equipment — Part 1: General safety requirements and test methods*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 20957-1 and the following apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
treadmill
training equipment with a running surface on which walking or running activity takes place, where the feet are free to leave the running surface

3.2
length of the running surface
usable length of the running surface

Note 1 to entry: See *l* in Figure 2.

Note 2 to entry: Figure 1 is intended only to give examples and to illustrate the names of the components.

3.3
width of the running surface
usable width of the running surface excluding rear roller guards

Note 1 to entry: See *b* in Figure 2.

3.4
front handlebar
frontally located bar provided for partially supporting the user's weight with the user's arm(s) and enhancing stability whilst exercising and to assist in emergency dismounts

EXAMPLE At low speed and high inclines.

3.5
side handrail
rail(s) located at the sides of the running surface provided for partially supporting the user's weight with the user's arm(s) and enhancing stability whilst exercising and to assist in emergency dismounts

3.6
foot rail
area beside the running surface intended for the user to stand on when mounting, dismounting or during a pause in the exercise

3.7
emergency dismount
act of the user quickly interrupting the exercise by getting off the running surface

Note 1 to entry: Emergency dismount can be done e.g. by grabbing the front handlebar or both side handrails and jumping with *both* feet on the foot rails.

3.8
heart rate control mode
programme that allows the user to train maintaining a predetermined pulse level by adjusting the speed and/or incline automatically according to the actual pulse of the user

3.9
display
device that provides information to the user

3.10
protective cover
cover provided to protect the user from inadvertent access to hazardous parts

EXAMPLE Moving parts, gear systems or hot surfaces.

3.11
folding treadmill
treadmill designed with some components that can be moved to allow a more compact non-useable storage position

4 List of significant hazards

Table 1 shows the significant hazards, hazardous situations and events, as far as they are dealt with in this document, identified by risk assessment as significant for this type of equipment and which require action to eliminate or reduce the risk.

For a particular treadmill, a risk assessment should be carried out by the manufacturer to identify any additional significant hazards so that suitable protective measures can be taken. Additional hazards are outside the scope of this standard.

For identification and evaluation of hazards, ISO 12100 shall apply.

Table 1 — List of significant hazards and major sources of these hazards associated with treadmills

*)	Description	Associated activity/situation
1.	**Mechanical hazards**	
1.1.	Crushing	Inclining
		Folding
1.2.	Shearing	Inclining
		Folding
1.3.	Drawing-in or Trapping	Rear roller
		Drive system
1.4.	Falling	Sudden starts/stops
		Excessive speed variation
		Support failure
1.5.	Abrasion	Contact with moving running surface
1.6.	Slippery surfaces	Slipping and Falling
1.7.	Stored energy	Folded treadmills falling down
		Springs or elastomeric devices prior to assembly
2.	**Electrical hazards**	
2.1.	Electrocution	Contact with live components
3.	**Thermal Hazards**	
3.1	Burns	Contact with hot surfaces
4.	**Hazards generated by neglecting ergonomic principles in design process**	
4.1.	Ineffective ergonomics	Size or location of support surfaces
		Running surface dimensions
4.2.	Human errors, human behaviour	Reasonably foreseeable misuse
5.	**Noise Hazards**	
5.1.	Disturbing acoustic communication	Moving treadmill motor and belt

5 Classification

ISO 20957-1:2013, Clause 4 shall apply.