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Stationary training equipment —

Part 10: Exercise bicycles with a fixed wheel or without freewheel — Additional specific safety requirements and test methods

Équipement d'entraînement fixe —
Partie 10: Bicyclettes d'exercice avec une roue fixe ou sans roue libre — Exigences spécifiques de sécurité et méthodes d'essai supplémentaires

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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 on 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 the following URL: www.iso.org/iso/foreword.html.

ISO 20957-10 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 136, *Sports, playground and other recreational facilities and equipment*, in collaboration with ISO Technical Committee TC 83, *Sports and other recreational facilities and equipment*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 20957-10:2007), which has been technically revised.

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

— the Scope has been simplified;

— the formulation has been aligned with ISO 20957-1;

— Clause 5 has been specified and restructured;

— Clause 6 has been specified and restructured;

— the Normative references have been updated.

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

Stationary training equipment —

Part 10: Exercise bicycles with a fixed wheel or without freewheel — Additional specific safety requirements and test methods

1 Scope

This document specifies safety requirements for exercise bicycles with a fixed wheel or without freewheel that have an inertia of >0,6 kg·m^2. The requirements are in addition to the general safety requirements of ISO 20957-1, with which this document is intended to be read in conjunction.

Any attachment provided with the exercise bicycle with a fixed wheel or without freewheel for the performance of additional exercises is subject to the requirements of ISO 20957-1.

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.

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

ISO 13732-1:2006, *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces*

ISO 20957-1, *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 http://www.iso.org/obp

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

3.1
flywheel
rotating mass designed to create inertia

3.2
freewheel
mechanism which is designed to disengage the *flywheel* (3.1) from the pedal mechanism in one direction

3.3
seat pillar
connection between the frame and the seat provided to adjust the height of the seat

3.4
seat tube
part of the frame where the *seat pillar* (3.3) is inserted

3.5
handlebar stem
connection between the frame and the handlebar provided to adjust the height of the handlebar

3.6
emergency brake
mechanism designed to stop the movement of the pedals in case of emergency

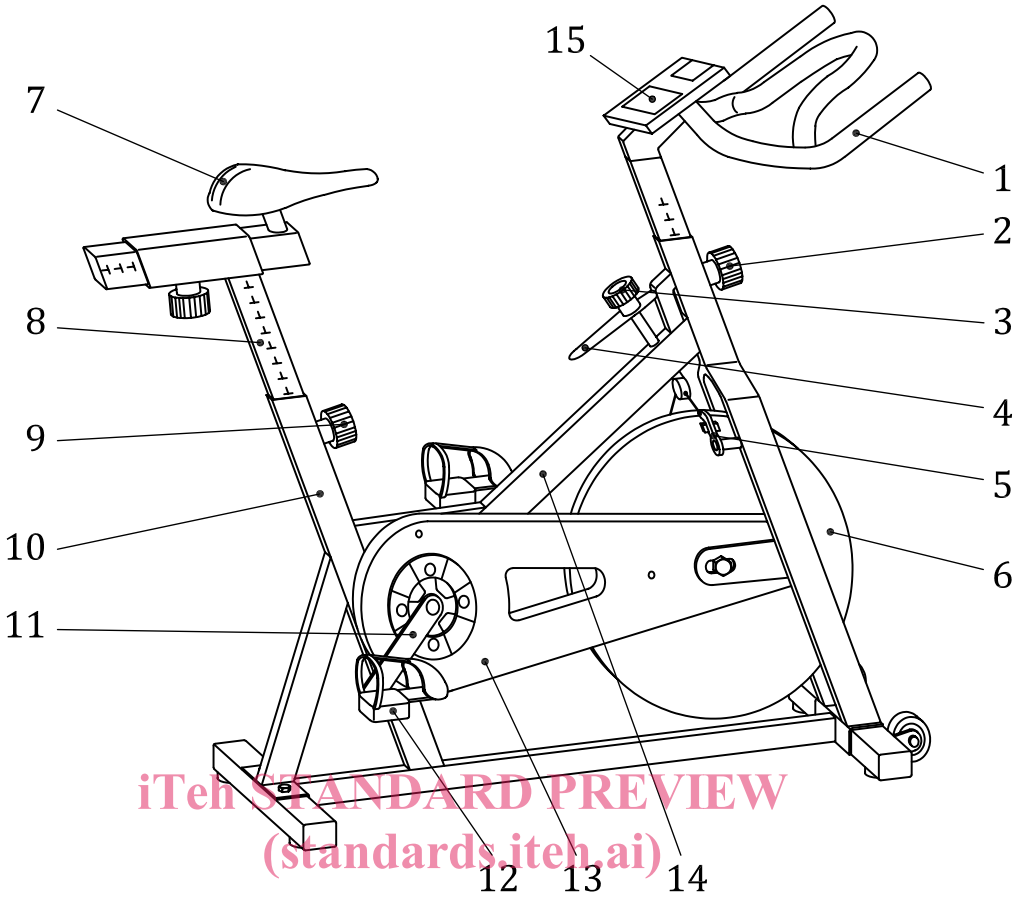
3.7
locking system
mechanism designed to immobilize any rotating part of the training equipment

3.8
housing
cover used to encase potentially hazardous elements

3.9
transmission guard
component used to prevent access to potentially hazardous transmission elements

4 Classification

The usage classes according to ISO 20957-1 apply. Figure 1 shows an example of a training equipment with a fixed wheel or without freewheel.



Key

1	handlebar	9	seat adjustment
2	handlebar adjustment	10	seat tube
3	resistance adjustment	11	pedal crank
4	emergency brake	12	pedal
5	resistance system (brake)	13	transmission guard
6	flywheel	14	frame
7	seat	15	display (if provided)
8	seat pillar		

Figure 1 — Example of an exercise bicycle with a fixed wheel or without freewheel

5 Safety requirements

5.1 External construction

5.1.1 Transmission elements, rotating parts, squeeze and shear points

Training equipment where the pedal cranks have a greater diameter than the housing shall have a distance between the pedal cranks and the stationary parts of the construction of ≥10 mm. This requirement does not apply if the housing has a greater diameter than the pedal crank.

Transmission elements shall be covered in accordance with ISO 12100. All other parts shall be tested with the test finger in accordance with ISO 20957-1. The test finger shall not become entrapped or come into contact with moving parts which do not have a smooth surface. The radius of the edge of the

flywheel shall be ≥2,5 mm. The edges of the pedals shall be free of burrs, rounded or protected in some other way.

Test in accordance with 6.1.1 and 6.2.

5.1.2 Temperature of accessible surfaces

Accessible surfaces of the training equipment shall not have a temperature >65 °C.

Test in accordance with 6.3.

5.2 Intrinsic loading

5.2.1 Seat pillar

The seat pillar shall be tested in the most onerous position with a vertical load of 2,5 times the maximum user's body mass as specified in the user's manual or 2 500 N, whichever is greater.

Test in accordance with 6.4.

During the tests of the seat pillar, the training equipment shall not tip over. The clamped seat pillar shall not slip by more than 5 mm into the seat tube during the test. After the test, the training equipment shall not be broken and shall still function as intended by the manufacturer.

5.2.2 Handlebar

The handlebar shall be tested with a vertical load of 1,5 times the maximum user's body mass specified in the user's manual or 1 500 N, whichever is greater.

The same handlebar shall then be tested with a horizontal load. The load shall be 0,5 times the maximum body mass as specified in the user's manual or 500 N, whichever is greater, applied horizontally in a forward direction.

After the test, the training equipment shall not be broken and shall still function as intended by the manufacturer.

Test in accordance with 6.5.

5.2.3 Pedal

The pedals shall withstand a load of 2,5 times the maximum user's body mass as specified in the user's manual or 2 500 N, whichever is greater. Test in accordance with 6.8.

After the test, the training equipment shall not be broken and shall still function as intended by the manufacturer.

5.3 Seat pillar adjustment

5.3.1 General

The height and the horizontal position, if applicable, of the seat shall be adjustable without a tool for class S training equipment.

For class H training equipment, if a tool is required to adjust the seat height, it shall be provided by the manufacturer.

5.3.2 Insertion depth

The seat pillar shall have a permanent mark indicating the minimum insertion depth of at least 1,5 times the cross-section reference dimension (e.g. diameter or longest diagonal use of a rectangular tube) into the seat tube. The mark is not required if the minimum insertion depth is given by the design.

Test in accordance with 6.1.1 and 6.1.2.

If the clamping mechanism of the horizontal adjustment becomes loose, the seat shall remain attached and support the user.

Test in accordance with 6.1.3.

5.4 Handlebar

5.4.1 Handlebar stem adjustment

The handlebar stem shall be adjustable or different grip positions shall be possible.

If a tool is required to adjust the handlebar stem, it shall be provided by the manufacturer.

5.4.2 Insertion depth

The handlebar stem shall have a permanent mark indicating the minimum insertion depth of at least 1,5 times the cross-section reference dimension (e.g. diameter or longest diagonal use of a rectangular tube) into the frame. The mark is not required if the minimum insertion depth is given by the design.

Test in accordance with 6.1.1 and 6.1.2.

If the clamping mechanism of the horizontal adjustment becomes loose, the handlebar shall remain attached and support the user.

Test in accordance with 6.1.3.

5.5 Pedals

The pedals shall include retention means which retain the foot in a position preventing unintended movement.

Test in accordance with 6.1.2 and 6.1.3.

5.6 Stability

The training equipment shall not tip over.

Test in accordance with 6.6.

5.7 Locking system

Exercise bicycles without freewheel for home use (class H) shall be equipped with a locking system.

The locking system shall be able to hold ≥100 Nm torque applied to the crankshaft. The crank shall not rotate >45° when loaded.

NOTE The locking system is provided to help prevent uncontrolled use or movement of any rotating parts of high inertia of the training equipment by persons, especially children.

Test in accordance with 6.10.