INTERNATIONAL STANDARD

ISO 20957-5

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Stationary training equipment —

Part 5: Stationary exercise bicycles and upper body crank training equipment, additional specific safety requirements and test methods

Équipement d'entraînement fixe —

Partie 5: Bicyclettes fixes d'exercice et équipements d'entraînement à manivelles de la partie supérieure du corps — 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 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 20957-5 was prepared by the European Committee 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 20957-5:2005), which has been technically revised with the following changes:

— publication as an EN ISO;

— formulation aligned with ISO 20957-1;

— Clause 5 "Safety requirements" specified and restructured;

— Clause 6 "Test methods" specified and restructured;

— normative references updated.

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

Introduction

This document concerns the safety of crank training equipment. It amends and supplements ISO 20957-1. The requirements of this document take priority over those in the general standard.

Stationary training equipment —

Part 5:
Stationary exercise bicycles and upper body crank training equipment, additional specific safety requirements and test methods

1 Scope

This document specifies safety requirements for stationary exercise bicycles and upper body crank training equipment in addition to the general safety requirements of ISO 20957-1.

This document is applicable to stationary training equipment type stationary exercise bicycles and upper body crank training equipment (type 5) as defined in Clause 3 within the classes S, H, I and A, B, C according to ISO 20957-1.

Any attachment provided with the stationary exercise bicycles and upper body crank training equipment for the performance of additional exercises are subject to the requirements of ISO 20957-1.

This document is not applicable to roller stands as they cannot be made safe in a reasonable way.

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 4210-8:2014, *Cycles — Safety requirements for bicycles — Part 8: Pedal and drive system test methods*

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

EN 71-1, *Safety of toys — Part 1: Mechanical and physical properties*

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:

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

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

3.1
crank training equipment
stationary apparatus on which work is carried out by turning a crank mechanism either by using the lower body or the upper body or both

3.2
freewheel
mechanism which is designed to disengage the flywheel from the crank 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
display
device that provides information to the user

3.7
load adjustment
device to change the level of resistance felt by the user

3.8
constant power mode
programme that allows the user to maintain a predetermined equipment power level independent of pedalling revolutions per minute and can be adjustable to different levels

Note 1 to entry: $P = 2 \cdot M \cdot \pi \cdot n/60$

where

P is the power, in Watts;

M is the torque at the crank axle, in Newton metre;

n is the crank speed, in revolutions per minute.

3.9
adjustable torque
torque that allows the user to maintain a pre-determined equipment resistance level

Note 1 to entry: The power is only dependent upon the pedalling revolutions per minute and the chosen resistance level ($M = F \cdot L$)

where

M is the torque at the crank axle, in Newton metre;

F is the linear force applied, in Newton;

L is the length of the crank arm, in metre.

3.10
inertia factor
sum of the inertia moments of all rotating parts of the drive train multiplied by the square of the appropriate gear ratio

Note 1 to entry: The gear ratio is the rotational speed of the flywheel divided by the rotational speed of the relevant shaft beginning by the crank shaft.

3.11
protective cover
cover provided to protect the user from inadvertent access to hazardous parts of the *crank training equipment* (3.1)

Note 1 to entry: Hazardous parts include moving parts, gear systems, hot surfaces, etc.

3.12
adjustable handlebar
handlebars which can be adjusted for different training positions

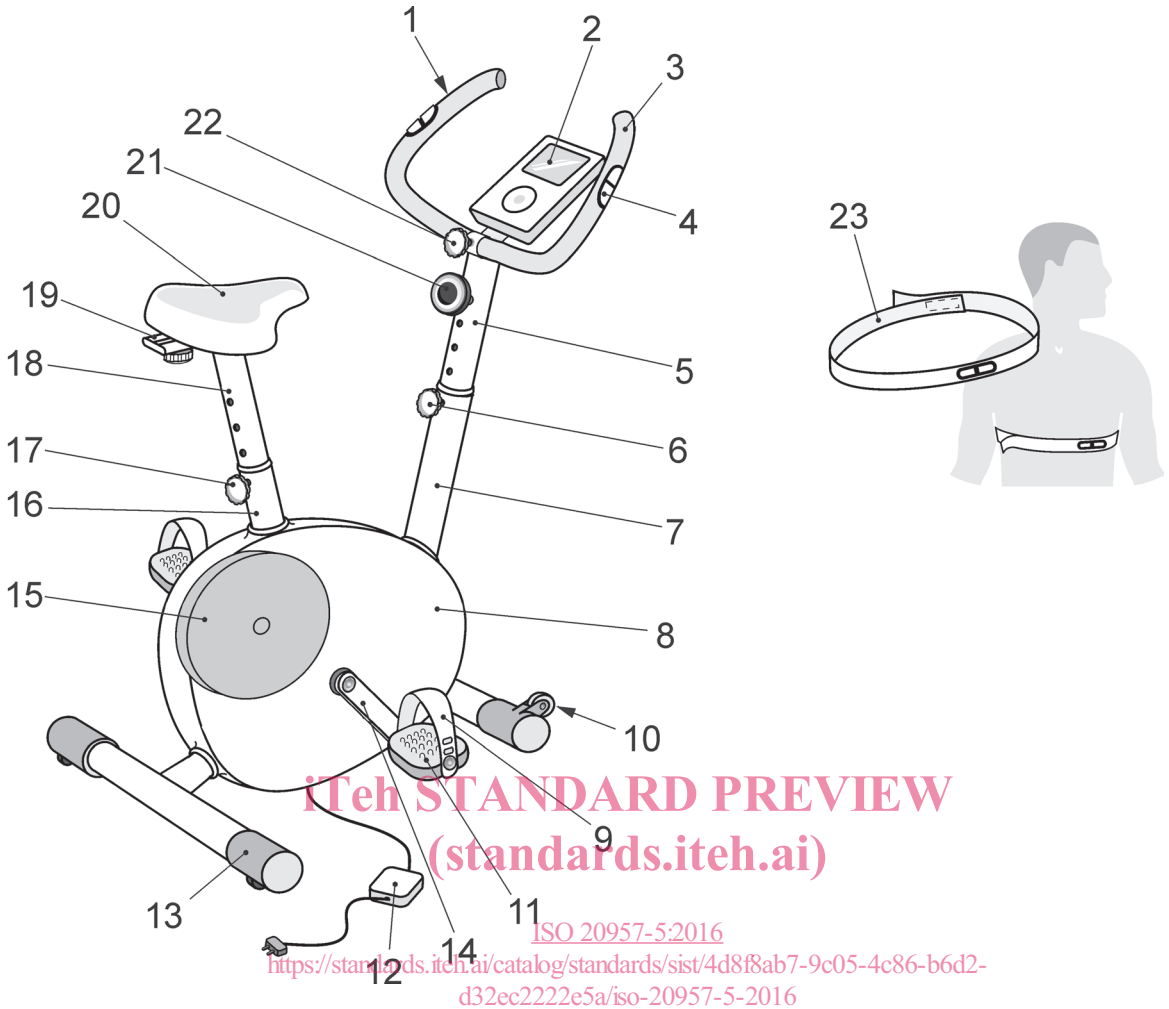
3.13
heart rate control mode
programme that allows the user to maintain training with a predetermined pulse level by adjusting the resistance automatically

3.14
seat system
system that consists of seat, seat back rest, adjustment and mounting components

4 Classification

The classification shall be according to ISO 20957-1.

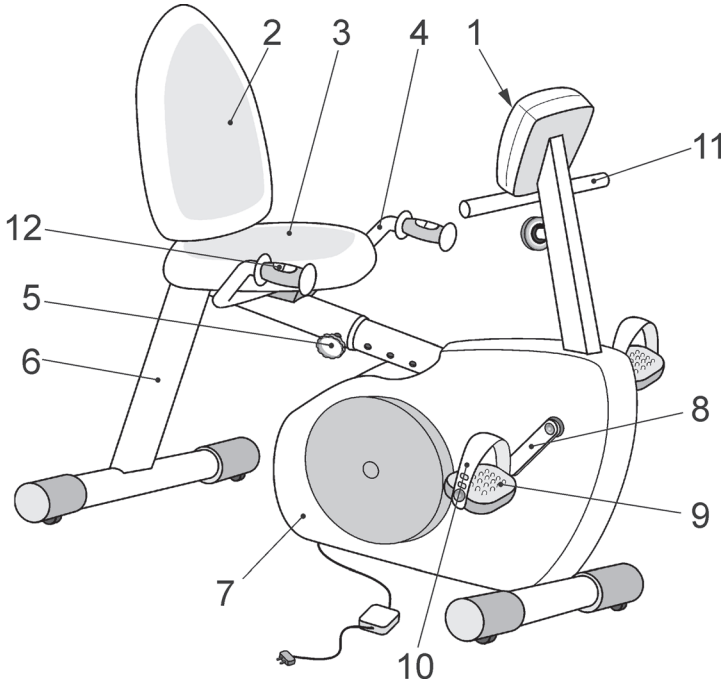
NOTE Figure 1 to Figure 3 are intended only to give examples and to illustrate the names of the components.



Key

1	handlebar	13	foot
2	display	14	crank
3	hand grip	15	flywheel
4	contact heart rate sensor	16	seat tube
5	handlebar stem	17	seat height adjustment
6	handlebar height adjustment	18	seat pillar
7	frame	19	horizontal seat adjustment
8	protective cover	20	seat
9	pedal strap	21	load adjustment
10	transport wheel	22	handlebar adjustment device
11	pedal	23	heart rate belt
12	power supply		

Figure 1 — Example of upright stationary exercise bicycle



Key

1	display	9	pedal
2	seat back rest	10	pedal strap
3	seat	11	front handlebar
4	seat handlebar	12	heart rate hand sensor
5	seat adjustment		
6	frame		
7	protective cover		
8	crank		

Figure 2 — Example of recumbent stationary exercise bicycle