
Stationary training equipment —

Part 9:

**Elliptical trainers, additional specific
safety requirements and test methods**

*Équipement d'entraînement fixe —
Partie 9: Appareils d'entraînement elliptiques — Exigences spécifiques
de sécurité et méthodes d'essai supplémentaires*

[ISO 20957-9:2005](https://standards.iso.org/iso-20957-9:2005)

<https://standards.iteh.ai/catalog/standards/sist/fc91e1b6-b372-45b1-bb70-12bc38caab6f/iso-20957-9-2005>



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO 20957-9:2005](https://standards.iteh.ai/catalog/standards/sist/fc91e1b6-b372-45b1-bb70-12bc38caab6f/iso-20957-9-2005)

<https://standards.iteh.ai/catalog/standards/sist/fc91e1b6-b372-45b1-bb70-12bc38caab6f/iso-20957-9-2005>

© ISO 2005

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 20957-9 was prepared by CEN (as EN 957-9) and was adopted, under a special “fast-track procedure”, by Technical Committee ISO/TC 83, *Sports and recreational equipment*, in parallel with its approval by the ISO member bodies.

ISO 20957 consists of the following parts, under the general title *Stationary training equipment*:

- *Part 1: General safety requirements and test methods*
- *Part 2: Strength training equipment, additional specific safety requirements and test methods*
- *Part 4: Strength training benches, additional specific safety requirements and test methods*
- *Part 5: Pedal crank training equipment, additional specific safety requirements and test methods*
- *Part 6: Treadmills, additional specific safety requirements and test methods*
- *Part 7: Rowing machines, additional specific safety requirements and test methods*
- *Part 8: Steppers, stairclimbers and climbers — Additional specific safety requirements and test methods*
- *Part 9: Elliptical trainers, additional specific safety requirements and test methods*

Contents

	Page
Foreword.....	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Terms and definitions.....	5
4 Classification.....	5
5 Safety requirements	7
6 Test methods.....	8
7 Additional instructions for use.....	11
Bibliography	12

iTeh STANDARD PREVIEW (standards.iteh.ai)

[ISO 20957-9:2005](https://standards.iteh.ai/catalog/standards/sist/fc91e1b6-b372-45b1-bb70-12bc38caab6f/iso-20957-9-2005)

<https://standards.iteh.ai/catalog/standards/sist/fc91e1b6-b372-45b1-bb70-12bc38caab6f/iso-20957-9-2005>

Foreword

This document (EN 957-9:2003) has been prepared by the Technical Committee CEN/TC 136 "Sports, playground and other recreational 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 December 2003, and conflicting national standards shall be withdrawn at the latest by December 2003.

This European Standard is one of the series EN 957 "Stationary training equipment" which consists of the following parts:

- Part 1: General safety requirements and test methods
- Part 2: Strength training equipment, additional specific safety requirements and test methods
- Part 4: Strength training benches, additional specific requirements and test methods
- Part 5: Pedal crank training equipment, additional specific safety requirements and test methods
- Part 6: Treadmills, additional specific safety requirements and test methods
- Part 7: Rowing machines, additional specific safety requirements and test methods
- Part 8: Steppers, stairclimbers and climbers, additional specific safety requirements and test methods
- Part 9: Elliptical trainers, additional specific safety requirements and test methods
- Part 10: Exercise bicycles with a fixed wheel or without freewheel, additional specific safety requirements and test methods

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

Introduction

This Part of EN 957 amends and supplements EN 957-1. The requirements of this specific European Standard take priority over those in the general standard.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[ISO 20957-9:2005](https://standards.iteh.ai/catalog/standards/sist/fc91e1b6-b372-45b1-bb70-12bc38caab6f/iso-20957-9-2005)

<https://standards.iteh.ai/catalog/standards/sist/fc91e1b6-b372-45b1-bb70-12bc38caab6f/iso-20957-9-2005>

1 Scope

This Part of EN 957 specifies safety requirements for elliptical trainers also described as cross training machines in addition to the general safety requirements of EN 957-1 and should be read in conjunction with it.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

EN 957-1:1996, *Stationary training equipment — Part 1: General safety requirements and test methods.*

ISO 5904, *Gymnastic equipment — Landing mats and surfaces for floor exercises — Determination of resistance to slipping.*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 957-1:1996 and the following apply:

3.1

elliptical trainer

manually operated training equipment which can produce a continuous reciprocating elliptical foot action which can include upper body training devices. Elliptical training functions as a continuous and reciprocating closed loop cycle

3.2

footplatform

pedal

device designed to support the foot whilst correctly performing the exercise procedure determined by the manufacturer

3.3

footplatform guard

pedal guard

fence

rigid part of the footplatform structure which is designed to prevent the foot moving off the footplatform whilst correctly performing the exercise procedure determined by the manufacturer

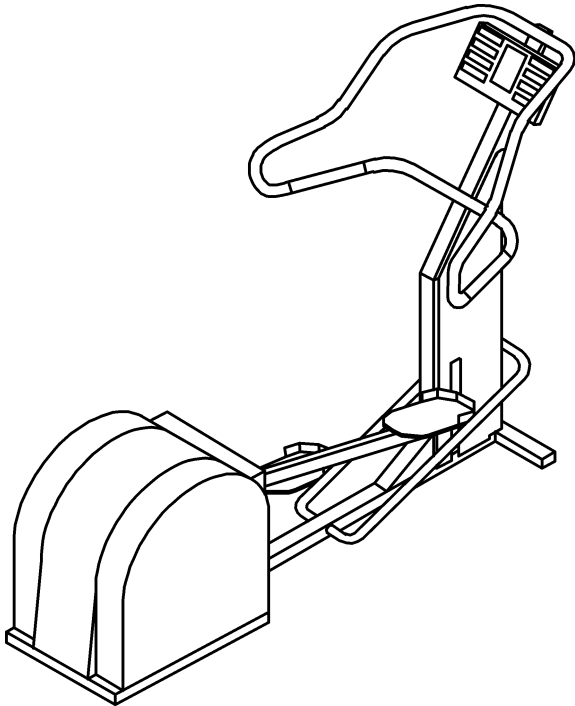
3.4

cycle

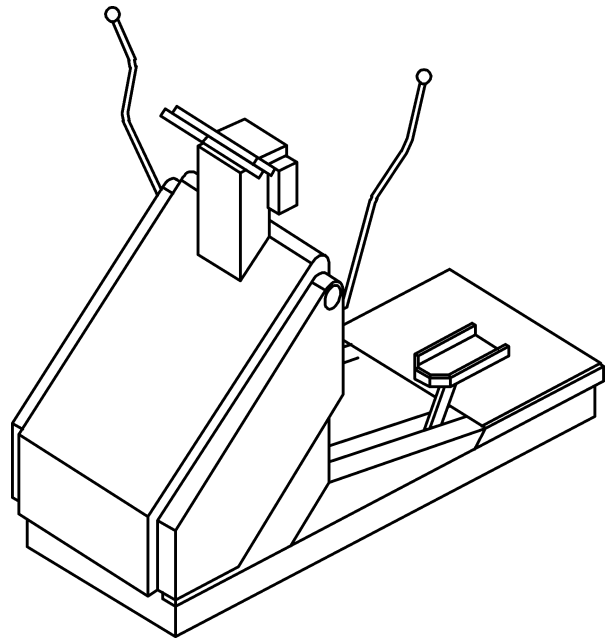
one cycle of an elliptical trainer equals from start to start through the full range of motion (360°)

4 Classification

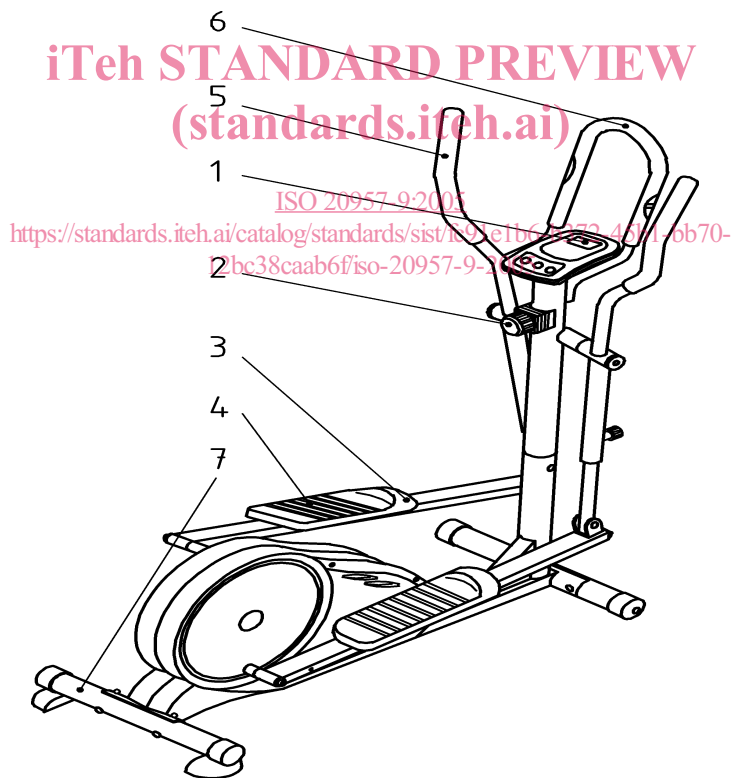
The classification as defined in clause 4 of EN 957-1:1996 applies.



a) Elliptical trainer without movable handlebars



b) Elliptical trainer with movable handlebar



c) Elliptical trainer with movable and fixed handlebar

Key

- 1 Display
- 2 Resistance
- 3 Footplatform guard
- 4 Footplatform (pedal)
- 5 Movable handlebar
- 6 Fixed handlebar
- 7 Frame

Figure 1 — Examples of elliptical trainers

5 Safety requirements

5.1 General

Depending on the design of the piece of equipment the following additional requirements to EN 957-1 shall apply as appropriate.

5.2 External construction

5.2.1 Squeeze and shear points within the accessible area

Elliptical trainers shall be free of squeeze and shear points.

Test in accordance with 6.2.

5.2.2 Temperature rise

When tested in accordance with 6.3, accessible parts of the elliptical trainer shall not have a temperature greater than 65 °C.

5.3 Intrinsic loading

5.3.1 Class H

Each piece of equipment of class H loaded with the user's body mass shall withstand 2,5 times the body mass (100 kg) without breakage.

Test in accordance with 6.4.

5.3.2 Class S

<https://standards.iteh.ai/catalog/standards/sist/fc91e1b6-b372-45b1-bb70-12bc38caab6f/iso-20957-9-2005>

The training equipment shall withstand four times the body mass (100 kg) without breakage.

Each piece of equipment of class S loaded with the user's body mass shall withstand two times the body mass (100 kg).

When tested according to 6.4, supports (e.g. load-bearing surfaces) shall not be deformed by more than $f = 1/100$, cantilever supports (cantilever surfaces) by more than $f = 1/150$ and other dimensions by more than 1 %.

A body mass of 100 kg is taken as the nominal load.

After the test

- supports (e.g. load-bearing surfaces) shall not be deformed by more than $f = 1/100$;
- cantilever supports (cantilever surfaces) by more than $f = 1/150$;
- other dimensions by more than 1/100.

5.4 Handlebars

The handlebars shall show no permanent deformation of more than 3 % when tested in accordance with 6.5.

To reduce the danger of penetration the section of the tip of the handlebar shall have a minimum diameter of 50 mm. Test in accordance with 6.1.1.