
Stationary training equipment —

Part 5:

**Pedal crank training equipment,
additional specific safety requirements
and test methods**

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Équipement d'entraînement fixe —

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*Partie 5. Appareils d'entraînement à pédales — Exigences spécifiques
de sécurité et méthodes d'essai supplémentaires*

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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 20957-5 was prepared by CEN (as EN 957-5) 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*

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Foreword

This European Standard has been prepared by the Technical Committee CEN /TC 136 "Sports, playground and other recreational equipment", of which the secretariat 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 **November 1996**, and conflicting national standards have to be withdrawn at the latest by **November 1996**.

This standard consists of the following parts:

EN 957-1, *General safety requirements and test methods*.

EN 957-2, *Strength training equipment, additional specific safety requirements and test methods*.

EN 957-4, *Strength training benches, additional specific safety requirements and test methods*.

EN 957-5, *Pedal crank training equipment, additional specific safety requirements and test methods*.

prEN 957-6, *Tread mills, additional specific safety requirements and test methods*.

prEN 957-7, *Rowing machines, additional specific safety requirements and test methods*.

prEN 957-8, *Stair climbers and steppers, additional specific safety requirements and test methods*.

This part of EN 957 should be read in conjunction with EN 957-1.

Annex A is given for information only.

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

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EN 957-5:1996 (E)

Introduction

This part of EN 957 concerns the safety of crank training equipment.

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

1 Scope

This part of EN 957 specifies safety requirements for pedal crank training equipment in addition to the general safety requirements of EN 957-1.

This part of EN 957 is applicable to stationary training equipment type pedal crank training equipment (type 5) as defined in clause 3 within the classes S, H and A, B, C.

Any attachment provided with the pedal crank training equipment for the performance of additional exercises are subject to the requirements of EN 957-1.

This part of EN 957 is not applicable to roller stands as they cannot be made safe in a reasonable way.

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.

EN 71-1, *Safety of toys — Part 1: Mechanical and physical properties*.
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EN 292, *Safety of machinery — Basic concepts, general principles for design*.

EN 563, *Safety of machinery — Temperatures of touchable surfaces — Ergonomics data to establish temperature limit values for hot surfaces*.

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

ISO 4210, *Cycles — Safety requirements of bicycles*.

3 Definitions

For the purpose of this standard the definitions of EN 957-1 and the following apply:

pedal crank training equipment (hereinafter referred to as training equipment): Stationary apparatus similar to a bicycle on which work is carried out by pedalling.

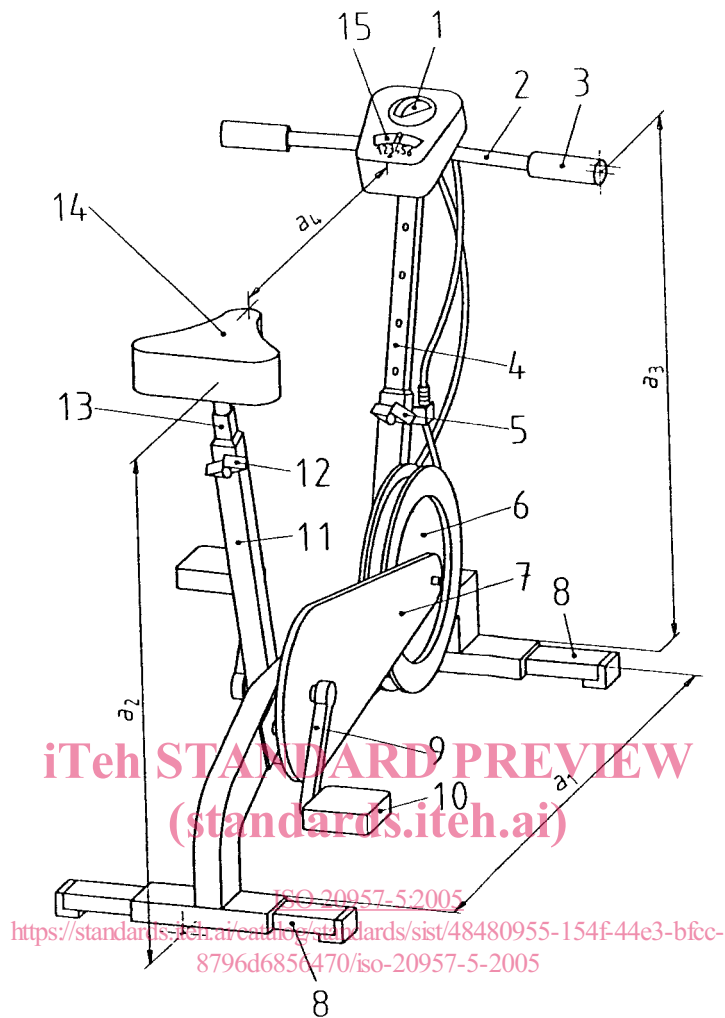
NOTE 1 The work rate P in watts results from the product of the braking moment M in N · m and the angular velocity $\omega = 2 \pi \cdot n$.

$$P = M \cdot 2 \cdot \pi \cdot n/60$$

where:

n is the speed of the pedal, in revolutions per minute.

NOTE 2 Figures 1 to 3 are intended only to give examples and to illustrate the names of the components.

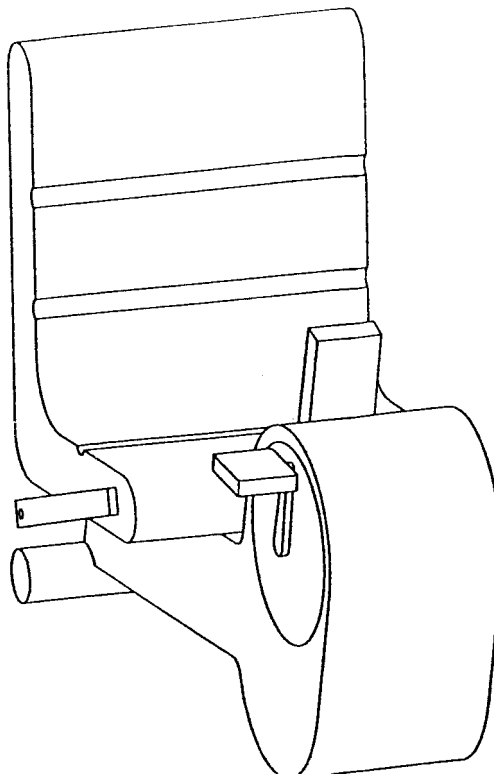


Key

- | | |
|-------------------------------|---------------------------|
| 1 Load adjustment | 9 Crank |
| 2 Handlebar | 10 Pedal |
| 3 Hand grip | 11 Seat tube |
| 4 Handlebar stem | 12 Seat height adjustment |
| 5 Handlebar height adjustment | 13 Seat pillar |
| 6 Flywheel | 14 Seat |
| 7 Housing | 15 Power display |
| 8 Frame | |

a_1 to a_4 Reference dimensions for testing in 6.4.

Figure 1 — Example of pedal crank training equipment



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Figure 2 — Example of recumbent/semirecumbent training equipment

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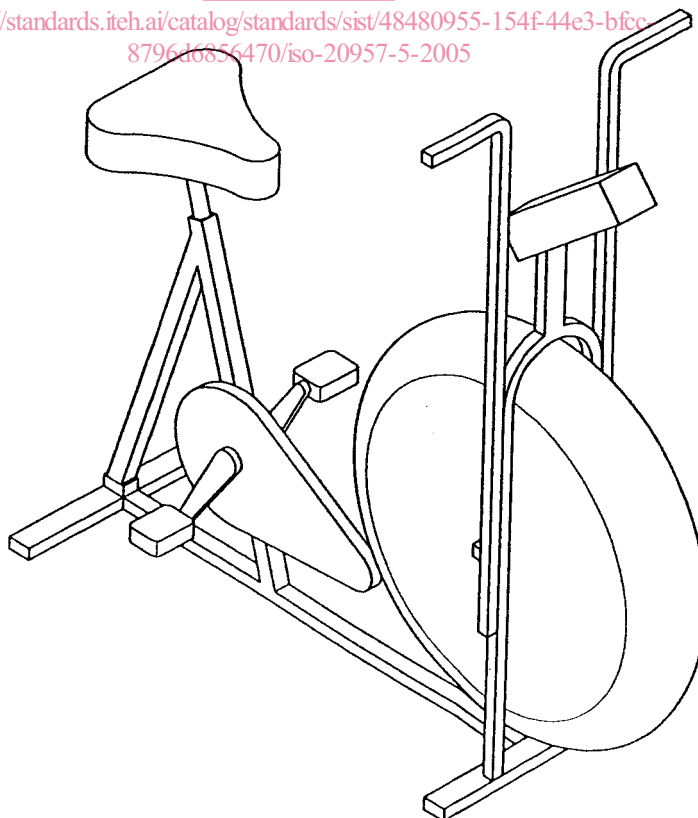


Figure 3 — Example of air fan training equipment

4 Classification

Clause 4 of EN 957-1:1996 applies.

5 Safety requirements

5.1 General

Depending on the design of the piece of training equipment the following requirements shall apply as appropriate.

5.2 External construction

5.2.1 Transmission elements and rotating parts

When tested in accordance with 6.1.1, the training equipment where the cranks have a greater diameter than the housing shall have a distance between the cranks and the stationary parts of the construction of not less than 10 mm.

Transmission elements, fans and flywheels shall be protected, so that, when tested according to 6.3, the test finger cannot be trapped or touch moving parts which have no smooth surface.

This requirement does not apply if the housing has a greater diameter than the crank.

5.2.2 Temperature rise

When tested in accordance with 6.2, accessible parts of the equipment shall not have a temperature greater than 65 °C.

5.3 Intrinsic loading

When tested in accordance with 6.4

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with 250 kg for class H, and

with 300 kg for class S,

the reference dimensions a_1 to a_4 (see figure 1) of each piece of training equipment shall withstand the test force without being changed for more than 1/100.

During the test 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.

5.4 Seat pillar — Seat

5.4.1 Insertion depth

The seat pillar shall have a permanent mark indicating the minimum insertion depth of 55 mm into the seat tube. The mark may be dispensed with if the minimum insertion depth is given by the design.

With locking systems, there shall be a minimum insertion depth of 55 mm in the highest position.

Test in accordance with 6.1.1 and 6.1.2.

5.4.2 Seat tilting

The height of the seat shall be adjustable (in the case of class A without a tool).

EN 957-5:1996 (E)

The seat shall be fixed to the seat pillar and, this in turn, in the seat tube, so that the seat does not tilt more than 2° from its original position. The measurement of 2° is between the seat pillar and the seat tube.

Test in accordance with 6.5.

5.5 Handlebar**5.5.1 Handlebar stem**

The handlebar stem shall be adjustable (in the case of class A and S without a tool) or different grip positions shall be possible.

If the vertical height is adjusted by means of an insertion system, the minimum required insertion depth of 65 mm shall be permanently marked above the end of the handlebar system.

The marking may be dispensed with if the minimum insertion depth is given by the design.

Test in accordance with 6.6.

5.5.2 Handlebar

When tested in accordance with 6.6, the handlebar shall withstand a torque of:

50 N · m for class H, and

75 N · m for class S,

around its horizontal or vertical axis without moving.

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5.6 Pedals

Pedals shall be in accordance with ISO 4210. [ISO 20957-5:2005](https://standards.iteh.ai/catalog/standards/sist/48480955-154f44e3-bfcc-8796d6856470/iso-20957-5-2005)

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5.7 Stability

When tested in accordance with 6.7, the training equipment shall not fall over.

5.8 Additional requirements for class A**5.8.1 Freewheel mechanism**

The training equipment shall have a freewheel mechanism.

Test in accordance with 6.1.4.

5.8.2 Power display

The power P shall be indicated in watts (W) or it shall be capable of being determined from the speed and preset braking torque.

The necessary displays shall be fixed to the pedal crank training equipment within the user's field of vision.

Test in accordance with 6.1.2.

5.8.3 Power adjustment

It shall be possible to set a power of at least 250 W.

The maximum dial graduation of the power P shall be 25 W and, that of the r/min indicator, 10 min^{-1} .