

Stationary training equipment —

Part 4: Strength training benches, additional specific safety requirements and test methods

The European Standard EN 957-4:2006 has the status of a
British Standard

ICS 97.220.30

National foreword

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The UK participation in its preparation was entrusted by Technical Committee SW/136, Sports, playground and other recreational equipment, to Subcommittee SW/136/4, Stationary training equipment, which has the responsibility to:

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 9 and a back cover.

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 July 2006

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ISBN 0 580 48923 X

Amendments issued since publication

Amd. No.	Date	Comments

English Version

Stationary training equipment - Part 4: Strength training benches, additional specific safety requirements and test methods

Appareils d'entraînement fixes - Partie 4 : Bancs pour haltères, exigences spécifiques de sécurité et méthodes d'essai supplémentaires

Stationäre Trainingsgeräte - Teil 4: Kraft-Trainingsbänke, zusätzliche besondere sicherheitstechnische Anforderungen und Prüfverfahren

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Foreword

This document (EN 957-4:2006) has been prepared by 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of an identical text or by endorsement, at the latest by December 2006, and conflicting national standards shall be withdrawn at the latest by December 2006.

This document supersedes EN 957-4:1996.

This standard EN 957 "Stationary training equipment" 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 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*
- *Part 10: Exercise bicycles with a fixed wheel or without freewheel, additional specific safety requirements and test methods*

The design of strength training benches need not comply with the figures in this part of EN 957.

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Introduction

This part of EN 957 concerns the safety of strength training benches.

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 stationary strength training benches and free-standing barbell racks used to perform exercises during use in addition to the general safety requirements of EN 957-1 and should be read in conjunction with it.

This part of EN 957 is applicable to stationary training equipment type benches (type 4) (hereinafter referred to as benches) with the classes S, H and I.

2 Normative references

The following referenced documents are indispensable for the application 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 957-1:2005, *Stationary training equipment — Part 1: General safety requirements and test methods*

EN 957-2:2003, *Stationary training equipment — Part 2: Strength training equipment, additional specific safety requirements and test methods*

3 Terms and definitions

For the purposes of this document the terms and definitions given in EN 957-1:2005 apply.

4 Classification

Clause 4 of EN 957-1:2005 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 Benches with fixed barbell supports

5.2.1 Rotational stability of the barbell

Overturning of the barbell by an unequal load shall be prevented either by the distance between the supports or safety device.

Test in accordance with 6.2.

5.2.2 Rotational stability of benches with fixed barbell supports

Benches with fixed barbell supports shall be stable when loaded with unequal load at right angles to the longitudinal axis.

Test in accordance with 6.3.

5.2.3 Longitudinal stability

Benches with fixed barbell supports shall be stable in the longitudinal direction.

Test in accordance with 6.4.

5.3 Free-standing barbell supports in conjunction with benches

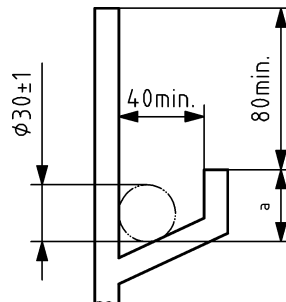
Free-standing barbell supports in conjunction with benches shall have a device for connecting to the ground.

Test in accordance with 6.1.2.

5.4 Dimensions of the barbell support

The front part of the support (yoke), when measured with a 30 mm diameter bar, shall have a vertical height of 20 mm to 40 mm (a) above the lowest point of the resting bar and the rear part shall be at least 80 mm higher than the top of the front of the support (yoke) (see Figure 1).

Dimensions in millimetres



Key

a) Vertical height of the barbell support, 20 mm to 40 mm

Figure 1 — Dimensions of the barbell support

Test in accordance with 6.1.1.

5.5 Barbell support strength

The rear part of the barbell support shall absorb the loads of normal use without impairment of the performance and without breakage.

Test in accordance with 6.5.

5.6 Loading

Loading for benches types H, S and I shall comply with 5.2 of EN 957-2:2003.

5.7 Barbell support

Any part of the equipment intended to support free weights, shall be easily accessible to the user while accepting or replacing the barbell.

Test in accordance with 6.1.4.

6 Test methods

6.1 General

6.1.1 Dimensional check

6.1.2 Visual examination

6.1.3 Tactile examination

6.1.4 Performance test

6.2 Testing of rotational stability of the barbell

Place a solid steel bar ($(1\ 600 \pm 50)$ mm long and a diameter of 30 mm max.) centrally on the barbell supports. Then place one weight disk (10 kg for class H, 20 kg for class S) on one side of the steel bar with mid-plane of the disk positioned 200 mm from the end of the steel bar, see Figure 2. If the bench is designed for use with an Olympic size steel bar use instead of the $(1\ 600 \pm 50)$ mm steel bar an Olympic steel bar of $(2\ 200 \pm 50)$ mm and follow the procedure above.

Dimensions in millimetres

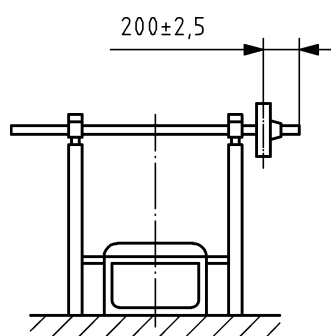


Figure 2 — Stability test under unequal load

6.3 Testing of rotational stability of benches with fixed barbell supports

Test as specified in 6.2, but with the barbell fixed.

6.4 Testing of longitudinal stability

Position the bench on a 10° slope (see Figure 3) and place a barbell loaded in accordance with the manufacturer's maximum load, but with a minimum of 50 kg, on the barbell support in the highest position.

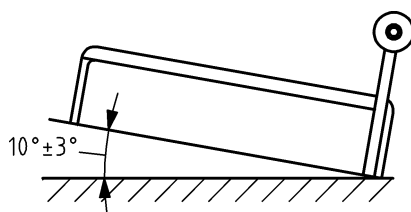
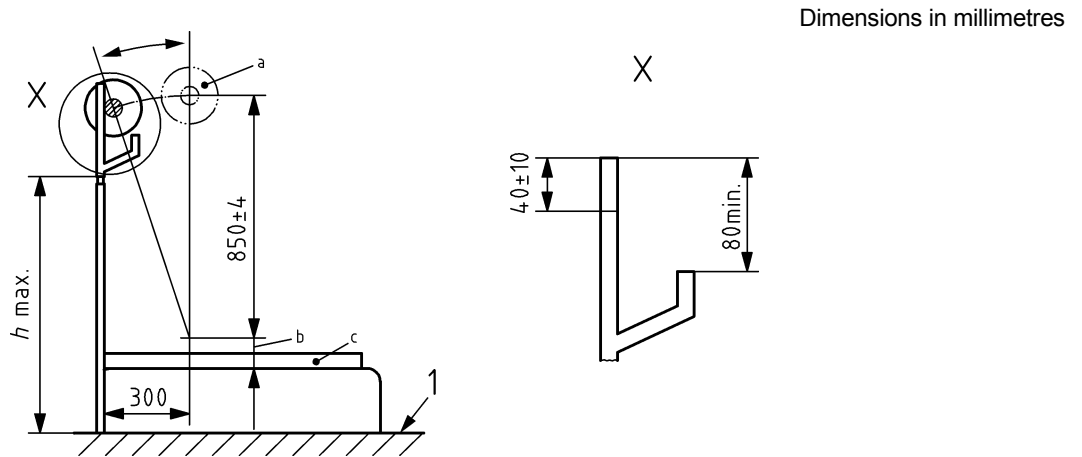


Figure 3 — Stability test in longitudinal direction

6.5 Testing of barbell support strength

Hit the back part of the yoke in a distance of (40 ± 10) mm from the top of that part with the pendulum (see detail Figure 4).



- Key**
- a) Test pendulum with maximum weight load as specified by the manufacturer but a minimum of 40 kg for class H and 50 kg for classes S and I
 - b) Variable length
 - c) 100 kg surface load distributed evenly over the bench
 - 1 Ground

Figure 4 — Load test of the barbell support

Repeat the test procedure (see Figure 4) 10 times.

6.6 Test report

The test report shall include at least the following information:

- a) name and address of testing laboratory and location where the test was carried out when different from the address of the test laboratory;
- b) unique identification of report (such as serial number) and of each page, and total number of pages of the report;
- c) name and address of client;
- d) description and identification of the test item;
- e) date of receipt of test item and date(s) of performance of test;
- f) identification of the test specification or description of the method or procedure;
- g) description of sampling procedure, where relevant;
- h) any deviations, additions or exclusions from the test specification, and any other information relevant to a specific test;
- i) measurements, examinations and derived results, supported by tables, graphs, sketches and photographs as appropriate, and any failures identified;
- j) statement on measurement uncertainty (where relevant);
- k) signature and title or an equivalent marking of person(s) accepting technical responsibility for the test report and date of issue;
- l) statement to the effect that the test results relate only to the items tested.

7 Additional instructions for use

In addition to the instructions for use in EN 957-1 the manufacturer shall provide instructions for the safe use of free-standing barbell support.

8 Marking

The maximum user's body weight and the maximum lifting load shall be indicated on each barbell support.

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