FINAL DRAFT
International Standard

ISO/FDIS 20957-1

Stationary training equipment —

Part 1: General safety requirements and test methods

Équipement d'entraînement fixe —

Partie 1: Exigences générales de sécurité et méthodes d'essai

iTeh Standards
(https://standards.iteh.ai)
Document Preview
ISO/FDIS 20957-1
https://standards.iteh.ai/catalog/standards/iso/aa12ad3f-f3bb-417e-b509-a347fb3a134b/iso-fdis-20957-1

ISO/TC **83**

Secretariat: **DIN**

Voting begins on:
2024-08-30

Voting terminates on:
2024-10-25

ISO/CEN PARALLEL PROCESSING

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

Reference number
ISO/FDIS 20957-1:2024(en)

© ISO 2024

iTeh Standards
(https://standards.iteh.ai)
Document Preview

ISO/FDIS 20957-1
https://standards.iteh.ai/catalog/standards/iso/aa12ad3f-f3bb-417e-b509-a347fb3a134b/iso-fdis-20957-1

COPYRIGHT PROTECTED DOCUMENT

© ISO 2024

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword ..... **v**
Introduction ..... **vi**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Classification **3**
4.1 General 3
4.2 Accuracy classes 3
4.3 Usage classes 3
5 Safety requirements **4**
5.1 General 4
5.2 Stability 4
5.3 External construction 4
5.3.1 General 4
5.3.2 Edges and corners 4
5.3.3 Tube ends 4
5.3.4 Squeeze and shear points 5
5.3.5 Weights and other resistance means 5
5.4 Entrapment of the user 5
5.5 Adjustment components and locking mechanisms 5
5.6 Ropes, belts, chains and attachment components 6
5.6.1 General 6
5.6.2 Ropes and belts 6
5.6.3 Rope and belt guides 6
5.7 Pull-in points 6
5.7.1 General 6
5.7.2 Pulleys 6
5.7.3 Chains, gears and sprockets 6
5.8 Hand grips 7
5.8.1 Integral handgrips 7
5.8.2 Applied handgrips 7
5.8.3 Rotating handgrips 7
5.9 Endurance 7
5.10 Isometric test function 7
5.11 Heart rate measurement system 7
5.11.1 Indication 7
5.11.2 Heart rate control mode 7
5.12 Electrical safety 8
5.13 Loading 8
5.14 Care and maintenance 8
5.15 Assembly instructions 9
5.16 General instructions for use 9
5.17 Marking 10
5.17.1 Permanent marking 10
5.17.2 Additional marking 10
6 Test methods **10**
6.1 Test conditions 10
6.2 Stability test 11
6.2.1 Test in training position 11
6.2.2 Test in folded or storage position 11
6.3 External construction 11
6.3.1 Test of edges and corners 11
6.3.2 Tube ends 11

iTeh Standards
(https://standards.iteh.ai)
Document Preview
ISO/FDIS 20957-1
https://standards.iteh.ai/catalog/standards/iso/aa12ad3f-f3bb-417e-b509-a347fb3a134b/iso-fdis-20957-1

© ISO 2024 – All rights reserved

6.3.3 Testing of squeeze points and shear points 11
6.3.4 Weights and other resistant means 11
6.3.5 Testing of pull-in points 11
6.4 Testing of entrapment 12
6.5 Adjustment components and locking mechanisms 12
6.6 Tests for ropes, belts, chains and attachment components 12
6.7 Testing of rope and belt guides 12
6.8 Testing of integral handgrips 12
6.9 Testing of applied handgrips 13
6.10 Testing of rotating handgrips 13
6.11 Testing of endurance load 13
6.12 Testing of isometric equipment 13
6.13 Testing of indicator of the heart rate measurement system 13
6.14 Testing of the heart rate control mode 13
6.15 Load testing 13
6.16 Testing of care and maintenance, assembly instructions, general instructions for use and marking 14
6.17 Test report 14

Annex A (informative) **Examples for carrying out load testing** **15**

Annex ZA (informative) **Relationship between this European Standard and the safety requirements of Directive 2001/95/EC aimed to be covered** **18**

Bibliography **20**

iTeh Standards
(https://standards.iteh.ai)
Document Preview

ISO/FDIS 20957-1
https://standards.iteh.ai/catalog/standards/iso/aa12ad3f-f3bb-417e-b509-a347fb3a134b/iso-fdis-20957-1

© ISO 2024 – All rights reserved

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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of 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 www.iso.org/iso/foreword.html.

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

This third edition cancels and replaces the second edition (ISO 20957-1:2013), which has been technically revised.

ISO/FDIS 20957-1
https://standards.iteh.ai/catalog/standards/iso/aa12ad3f-f3bb-417e-b509-a347fb3a134b/iso-fdis-20957-1

The main changes are as follows:

— Clause 2 was updated;

— Clause 3 was updated by removing, renaming, and adding entries;

— Clause 5 was updated so that 5.3.4 combines requirements for squeeze and shear points and 5.13 combines loading requirements;

— Clause 6 was updated so that 6.15 creates a single test method for loading testing;

— Annex A was added to provide informative examples for carrying out load testing.

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

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

© ISO 2024 – All rights reserved

Introduction

This document specifies safety requirements that are applicable to all stationary training equipment. For specific types of equipment these requirements are supplemented or modified by the requirements of the other parts of the ISO 20957 series.

This document should be used in conjunction with the other parts of the ISO 20957 series.

iTeh Standards
(https://standards.iteh.ai)
Document Preview

ISO/FDIS 20957-1
https://standards.iteh.ai/catalog/standards/iso/aa12ad3f-f3bb-417e-b509-a347fb3a134b/iso-fdis-20957-1

© ISO 2024 – All rights reserved

Stationary training equipment —

Part 1:
General safety requirements and test methods

1 Scope

This document specifies general safety requirements and test methods for indoor stationary training equipment. Other parts of the ISO 20957 series can modify the requirements contained in this document. This document also covers environmental aspects.

It also specifies a classification system (see Clause 4).

This document is applicable to all stationary training equipment. This includes equipment for use in training areas of organizations such as sport associations, educational establishments, hotels, sport halls, clubs, rehabilitation centres and studios (classes S and I) where access and control is specifically regulated by the owner (person who has the legal responsibility), equipment for domestic use (class H) and other types of equipment including motor driven equipment as defined in 3.1.

The requirements of other parts of the ISO 20957 series take priority over the corresponding requirements of this general standard.

This document does not apply to stationary training equipment intended for outdoor use. It also does not apply to stationary training equipment intended for use by children under 14 years old, unless such stationary training equipment is intended for educational purposes in schools and other pedagogical contexts for children under the supervision of a qualified adult instructor.

iTeh Standards
(https://standards.iteh.ai)
Document Preview
ISO/FDIS 20957-1
https://standards.iteh.ai/catalog/standards/iso/aa12ad3f-f3bb-417e-b509-a347fb3a134b/iso-fdis-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 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

IEC 60335-1:2023, *Household and similar electrical appliances — Safety — Part 1: General requirements*

IEC 60601-1:2006, *Medical electrical equipment — Part 1: General requirements for basic safety and essential performance*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

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

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

© ISO 2024 – All rights reserved

3.1
stationary training equipment
equipment that is not moved as a unit during use and either stands freely on the floor or is attached to a floor, wall, ceiling or other fixed structure

Note 1 to entry: Stationary training equipment can be used for example for the following:

a) body building or body shaping;

b) health/fitness training;

c) physical education;

d) training specific to competition and related sports activities;

e) preventive treatment and rehabilitation.

3.2
training area
area occupied by the user and the equipment while exercising over the full *range of movement* (3.5)

3.3
free area
area in addition to the *training area* (3.2) which is required for the user or third party to access the equipment and/or conduct an emergency dismount outside the full *range of movement* (3.5)

3.4
accessible hand and foot area
area accessible to the hand or foot of either a user or a third party when the equipment is in normal use, during exercise set-up, grasping, adjusting the equipment or the position of the body for exercise

iTeh Standards
(https://standards.iteh.ai)
Document Preview

3.5
range of movement
space in which the user or part of the equipment is moving according to the instructions given in the user's manual

ISO/FDIS 20957-1
https://standards.iteh.ai/catalog/standards/iso/aa12ad3f-f3bb-417e-b509-a347fb3a134b/iso-fdis-20957-1

3.6
body mass
maximum specified user mass as described in the user's manual or 100 kg, whichever is greater

3.7
maximum training load
maximum load specified by the manufacturer in the user's manual and in the marking

3.8
heart rate control mode
programme that allows the user to maintain training with a predetermined heart rate level by adjusting the loading parameters automatically to the user's heart rate response

Note 1 to entry: Loading parameters can be resistance or speed or incline or a combination of these.

3.9
heart rate measurement system
system which displays the heart rate of the user

3.10
display
device that provides information to the user

3.11
squeeze point
place where parts of the equipment can move against each other, or against a fixed area, which can result in parts of user's or third person's body being crushed

© ISO 2024 – All rights reserved

3.12
shear point
place where part of the equipment can move past a fixed or moving part, or past a fixed area, which can result in parts of user's or third person's body being cut

3.13
cycle
movement associated to one complete operation of a single component from start to start of a repetitive process

EXAMPLE A typical component is a pedal, handlebar or seat.

3.14
most onerous position
position that maximizes the likelihood of a negative outcome

EXAMPLE The most onerous position in the case of stability is the orientation of the equipment in which it is least stable, i.e. the centre of gravity of the equipment is as high as possible and/or outside or as close as possible to the edge of equipment’s base while the equipment is placed on a tilted table.

3.15
flywheel
rotating mass designed to create inertia

3.16
guard
barrier between the user and the hazard

3.17
protective cover
cover provided to protect the user from inadvertent access to hazardous parts of the training equipment

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

iTeh Standards
(https://standards.iteh.ai)
Document Preview

4 Classification

ISO/FDIS 20957-1
https://standards.iteh.ai/catalog/standards/iso/aa12ad3f-f3bb-417e-b509-a347fb3a134b/iso-fdis-20957-1

4.1 General

Equipment shall be classified in accordance with accuracy and usage classes as described in 4.2 and 4.3.

If the intended use of the equipment is for more than one usage class, it shall fulfil the requirements of each class.

4.2 Accuracy classes

Accuracy classes only apply to equipment which display training data.

4.2.1 Class A: high accuracy.

4.2.2 Class B: medium accuracy.

4.2.3 Class C: low accuracy.

NOTE The requirements of accuracy classes are shown in the additional parts of the standard series ISO 20957.

4.3 Usage classes

4.3.1 Class S (studio): professional and/or commercial use.

© ISO 2024 – All rights reserved

NOTE 1 Such stationary training equipment is intended for use in training areas of organizations such as sport associations, educational establishments, hotels, clubs and studios, where access and control are specifically regulated by the owner (person who has the legal responsibility).

4.3.2 Class H (home): domestic use.

NOTE 2 Such stationary training equipment is intended for use in private homes where access to the equipment is regulated by the owner (person who has the legal responsibility).

4.3.3 Class I: professional and/or commercial use provided for inclusive use for people with special needs (e.g. visual, hearing, physical or learning disabilities).

Such equipment shall also be in accordance with class S requirements.

NOTE 3 Such stationary training equipment is intended for use in training areas of organizations such as sport associations, educational establishments, hotels, clubs, rehabilitation centres and studios, where access and control are specifically regulated by the owner (person who has the legal responsibility).

5 Safety requirements

5.1 General

If any of the following safety requirements are applicable, the equipment shall meet the requirements using the test methods described in Clause 6.

5.2 Stability

iTeh Standards
(https://standards.iteh.ai)
Document Preview

The stationary training equipment shall be stable in any direction, in training, folding and storage positions.

The test shall be in accordance with 6.2.

5.3 External construction

ISO/FDIS 20957-1
https://standards.iteh.ai/catalog/standards/iso/aa12ad3f-f3bb-417e-b509-a347fb3a134b/iso-fdis-20957-1

5.3.1 General

Equipment shall be free of burrs.

Test shall be in accordance with 6.3.1.

5.3.2 Edges and corners

All edges and corners of surfaces supporting bodies shall have a radius $r \geq 2{,}5$ mm. All edges within the accessible hand and foot area shall be rounded or protected.

Test shall be in accordance with 6.3.1.

5.3.3 Tube ends

All tube ends within the accessible hand and foot area shall be closed off, for example by parts of the equipment or by plugs.

If plugs are used, they shall remain in position at the end of the endurance load test, as described in the relevant part(s) of the ISO 20957 series. If no endurance test is described in the applicable part, the pull-out force of the plug shall be ≥ 20 N.

Test shall be in accordance with 6.3.2.

© ISO 2024 – All rights reserved