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Nepremična oprema za vadbo - 2. del: Oprema za vadbo moči, dodatne posebne varnostne zahteve in preskusne metode (ISO/DIS 20957-2:2022)

Stationary training equipment - Part 2: Strength training equipment, additional specific safety requirements and test methods (ISO/DIS 20957-2:2022)

Stationäre Trainingsgeräte – Teil 2: Kraft-Trainingsgeräte, zusätzliche besondere sicherheitstechnische Anforderungen und Prüfverfahren (ISO/DIS 20957-2:2022)

Équipement d'entraînement fixe - Partie 2: Équipement d'entraînement de force, exigences spécifiques de sécurité et méthodes d'essai supplémentaires (ISO/DIS 20957-2:2022)

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ICS:

97.220.30 Oprema za dvoranske športe Indoor sports equipment

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Stationary training equipment —

Part 2: Strength training equipment, additional specific safety requirements and test methods

*Équipement d'entraînement fixe —**Partie 2: Équipement d'entraînement de force, exigences spécifiques de sécurité et méthodes d'essai supplémentaires*

ICS: 97.220.30

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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).

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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*, Subcommittee, 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 20957-2:2020), which has been technically revised.

The main changes compared to the previous edition are as follows:

- referenced standards have been updated with year of edition;
- Note 2 has been added to [Clause 1](#);
- [Clause 3](#) has been updated to add definition and corresponding figure for rack station;
- [Clause 5](#) has been restructured.

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.

Stationary training equipment —

Part 2:

Strength training equipment, additional specific safety requirements and test methods

1 Scope

This document specifies additional safety requirements for stationary strength training equipment.

This document is intended to be read in conjunction with the general safety requirements of ISO 20957-1:2013.

This document is applicable to stationary training equipment type strength training equipment with stacked weight resistance or other means of resistance, such as elastic cords, hydraulic, pneumatic, electrical, magnetic, springs and externally loaded weights (hereinafter referred to as stationary training equipment) with the classes H, S and I according to ISO 20957-1:2013.

NOTE 1 Free-weight barbell racks are also subject to the requirements of ISO 20957-4:2016 and ISO 20957-1:2013.

NOTE 2 Accuracy classes are not applicable to this type of stationary training equipment as accuracy classes will not affect the safety of this equipment.

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*

ISO 20957-1:2013, *Stationary training equipment — Part 1: General safety requirements and test methods*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 20957-1:2013 and the following apply.

ISO and IEC maintain terminological 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/>

3.1

selectorized equipment

strength training equipment where the resistance means is a load that is an integral part of the device that can be varied by the user without adding or removing components to and from the equipment

Note 1 to entry: An example of equipment where this component is relevant is shown in [Figure 1](#).

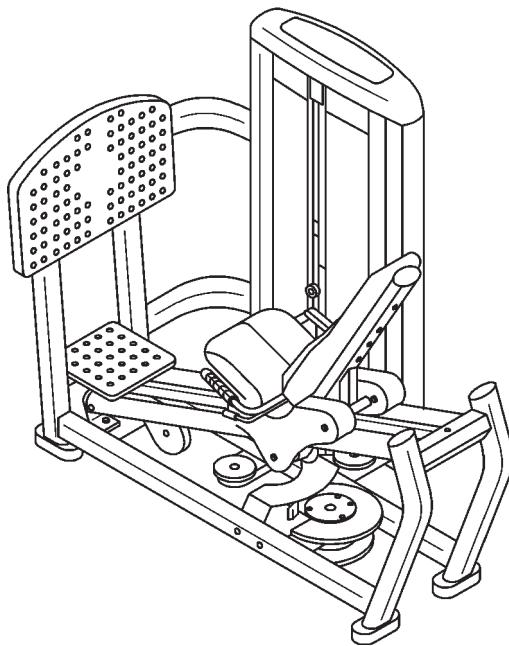


Figure 1 — Example of selectorized stationary training equipment

3.2 externally loaded equipment

strength training equipment where the main resistance means is a load that is not an integral part of the device which can be varied by the user by adding or removing components to and from the equipment

Note 1 to entry: Components to be added or removed are, for example, weight discs or bands.

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3.3 drop stop

permanent or adjustable constructive element creating a pre-set minimum stop position that provides the user with clearance to avoid entrapment without any further action of the user

3.4 catch mechanism

rest or holder for a barbell or for a carriage on *guided equipment* (3.9), which needs to be engaged by the user, from which the user can begin the exercise motion or end at the completion of the exercise

3.5 work arm

component of strength training equipment that allows the user to activate resistance means for a specific exercise

Note 1 to entry: An example of equipment where this component is relevant is shown in [Figure 2 a\)](#).

3.6 training resistance

force or torque exerted by the user to perform the exercise

3.7 weight post

structure protruding from the frame of *externally loaded equipment* (3.2) for the purpose of holding weight either for a resistance means or for storage

Note 1 to entry: An example of equipment where this component is relevant is shown in [Figure 2 b\)](#) and [2 c\)](#).

3.8**work arm actuated equipment**

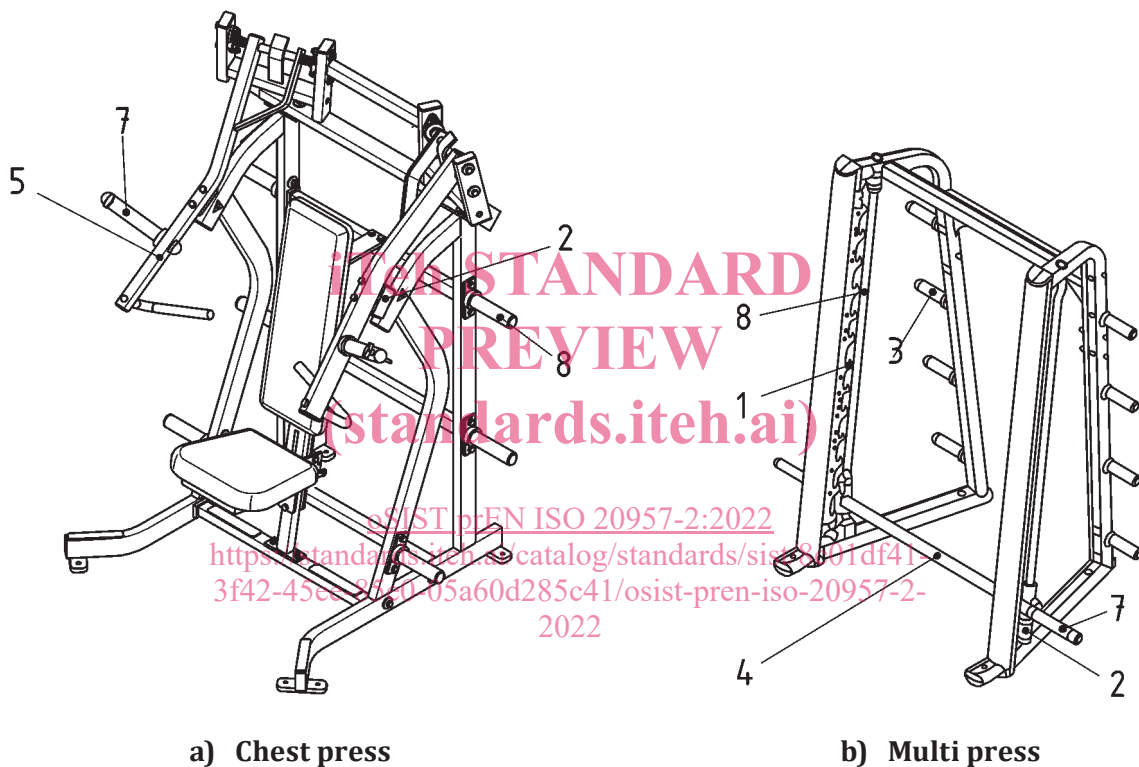
equipment where the external load is attached directly or indirectly to a movement mechanism that is displaced intentionally by the user

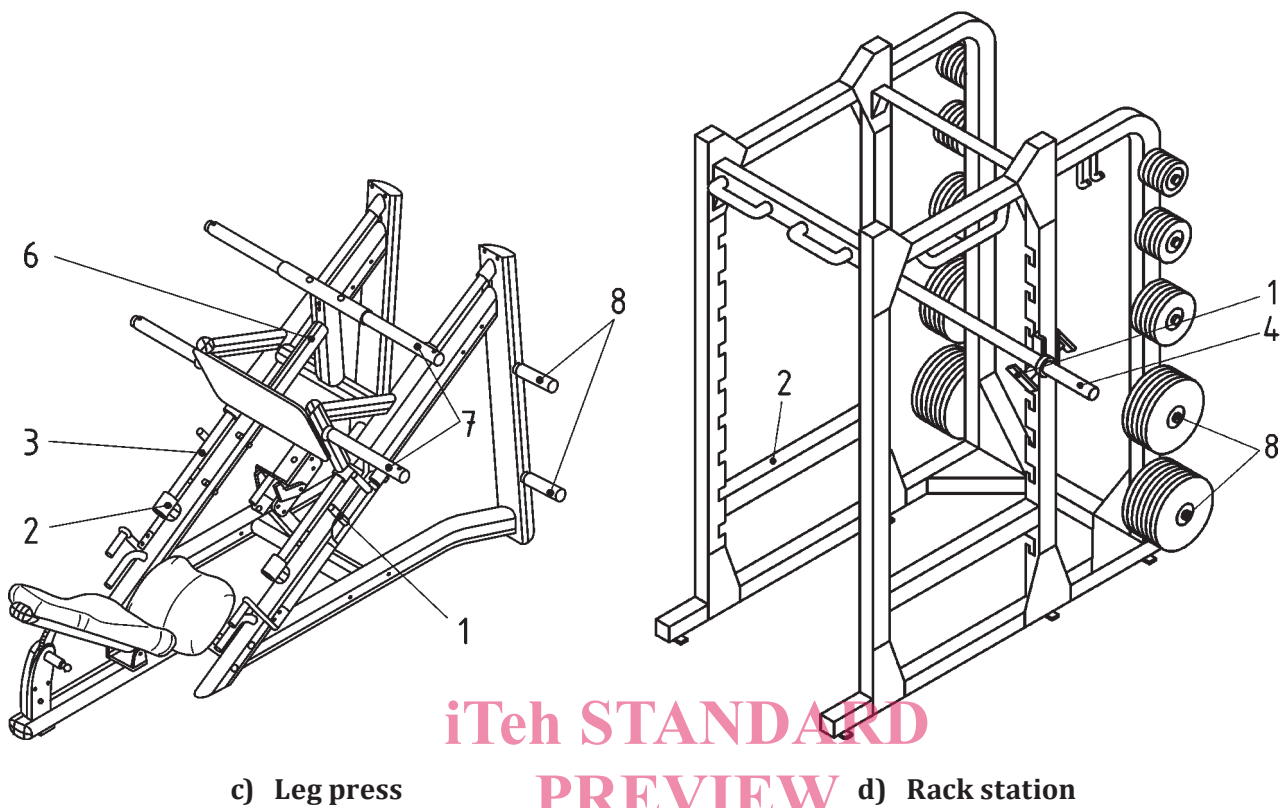
Note 1 to entry: An example is shown in [Figure 2 a\)](#).

3.9**guided equipment**

equipment where the external load is placed on a *weight post* ([3.7](#)) affixed to a carriage that is moving on a guided path

Note 1 to entry: Examples are shown in [Figure 2 b\)](#) and [Figure 2 c\)](#). Commonly used names for this equipment are "Smith press", "Smith Machine" and "multi-press".





c) Leg press

d) Rack station

Key

- 1 catch mechanism
- 2 adjustable drop stop
- 3 guide
- 4 barbell
- 5 work arm
- 6 carriage
- 7 training weight post
- 8 storage weight post

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Figure 2 — Examples for different types of externally loaded guided strength training equipment

3.10 rack station

cage or rack consisting of support pillars with adjustably-positioned catch mechanisms and drop stops, used to support a barbell if it is latched or dropped during strength exercises Note 1 to entry A n example is shown in [Figure 2](#) d).

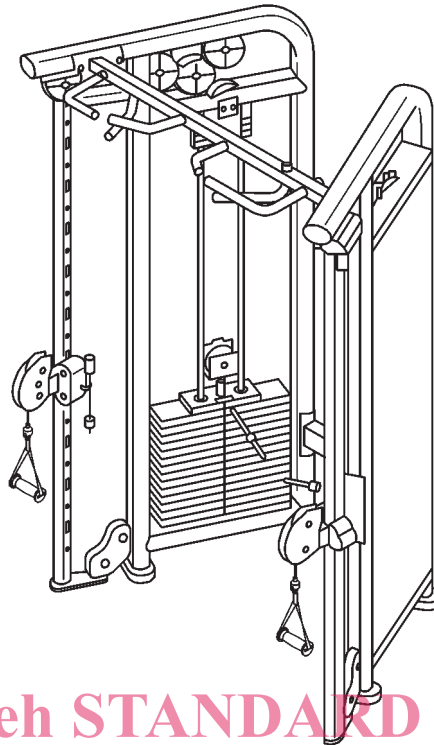
3.11 stacked weights

stacked guided weights used as a selectable training load in selectorized equipment

3.12 user-defined motion equipment

equipment where the workout motion is solely defined by the user

Note 1 to entry: An example is shown in [Figure 3](#).



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Figure 3 — Example of user-defined motion equipment

4 Classification

The classification given in ISO 20957-1:2013 shall apply.

5 Safety requirements

5.1 Stability

5.1.1 General

After installation and under foreseeable use the equipment shall be stable in any direction and loading condition in training, folding and storage positions.

Test in accordance with the stability test in ISO 20957-1:2013.

5.1.2 Externally loaded equipment

The equipment shall be stable when loaded as specified by the manufacturer either symmetrically or asymmetrically.

Test in accordance with [6.2.2](#).

5.1.3 User-defined motion equipment

The equipment shall be stable with maximum load selected as provided by the equipment and with its stacked weights at its highest point of the range of travel.

Test in accordance with [6.2.3](#).