



**International  
Standard**

**ISO 20957-2**

**Stationary training equipment —  
Part 2:  
Strength training equipment  
— Additional specific safety  
requirements and test methods**

*Appareils d'entraînement fixes —*

*Partie 2: Appareil d'entraînement de force — Exigences  
spécifiques de sécurité et méthodes d'essai supplémentaires*

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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 document 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](http://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](http://www.iso.org/patents). ISO shall not be held responsible for identifying any or all such patent rights.

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

<https://standards.iteh.ai/catalog/standards/iso/0776e9bd-084b-4e62-8a48-6818e3f25862/iso-20957-2-2024>

The main changes are as follows:

- referenced standards have been updated with year of publication;
- 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;
- [6.1.5](#) “Finger entrapment test” has been added.

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](http://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 safety requirements for stationary strength training equipment, in addition to the general safety requirements of ISO 20957-1:2013.

This document is applicable to stationary strength training equipment with stacked weight resistance or alternative 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 Accuracy classes are not applicable to this type of stationary training equipment as accuracy classes do 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* 2024

## 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 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/>

### 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 is shown in [Figure 1](#).

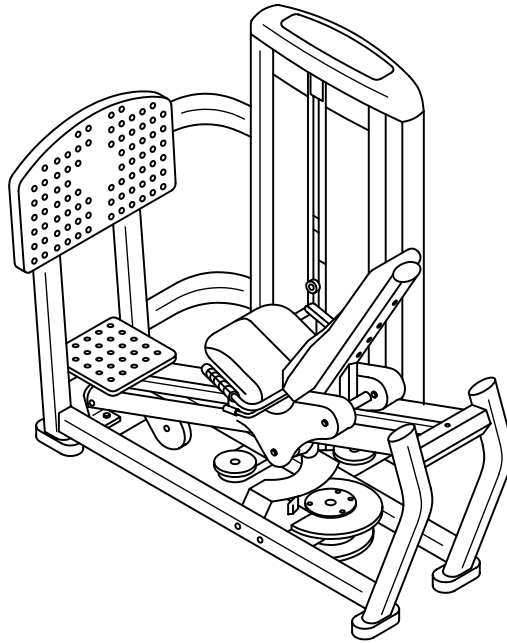


Figure 1 — Example of selectorized stationary training equipment

**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 that can be varied by the user by adding or removing components to and from the equipment

EXAMPLE Weight discs or resistance bands.

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

**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 [Figure 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**

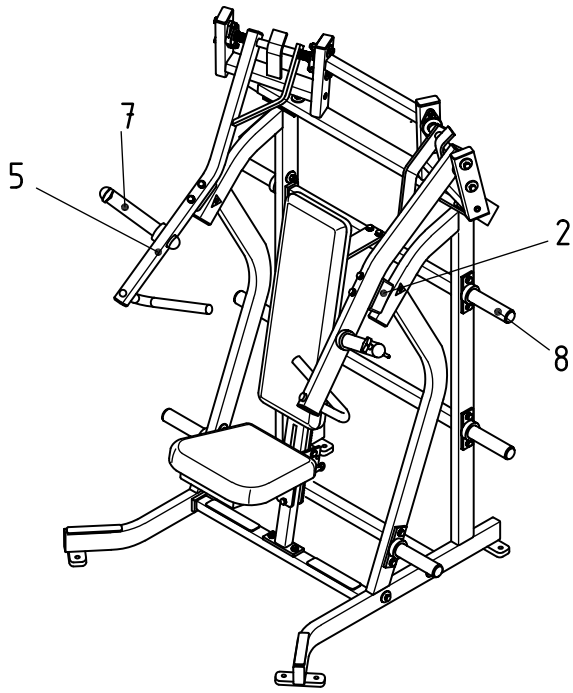
equipment where the external load is placed on a *weight post* ([3.7](#)) affixed to a carriage that is moving on a guided path

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".

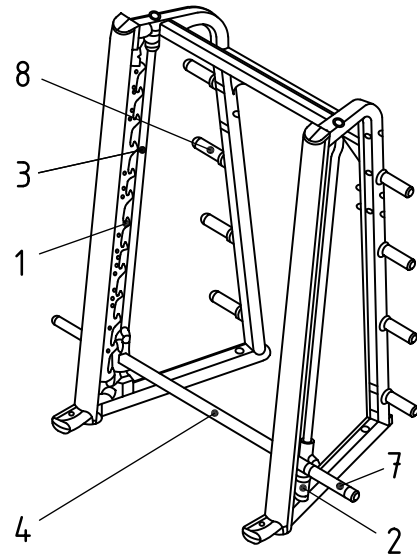
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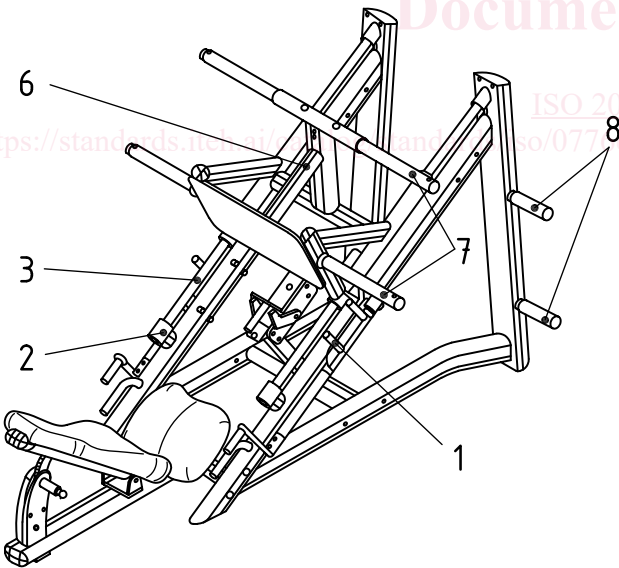
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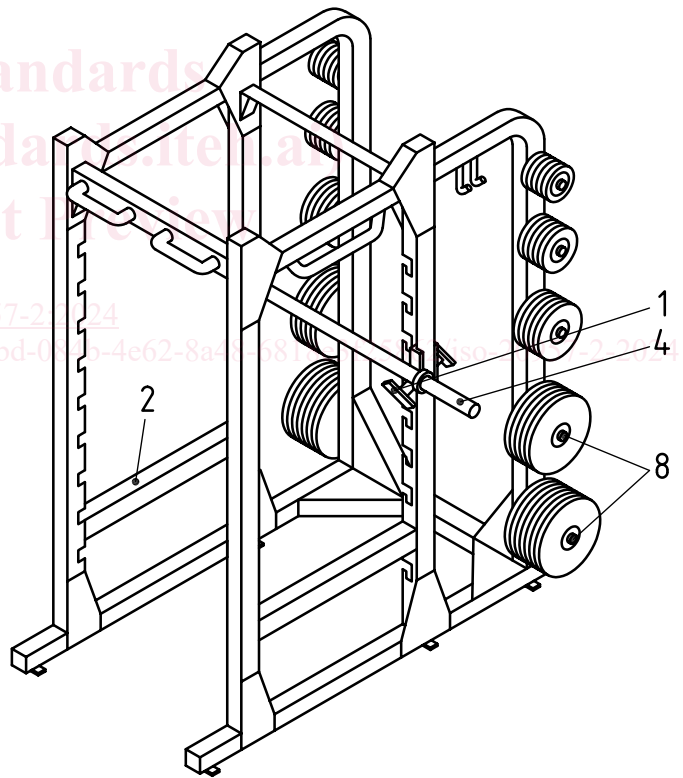
a) Chest press



b) Multi press



c) Leg press



d) Rack station



**Key**

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

**Figure 2 — Examples of 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* (3.4) and *drop stops* (3.3), used to support a barbell if it is latched or dropped during strength exercises

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

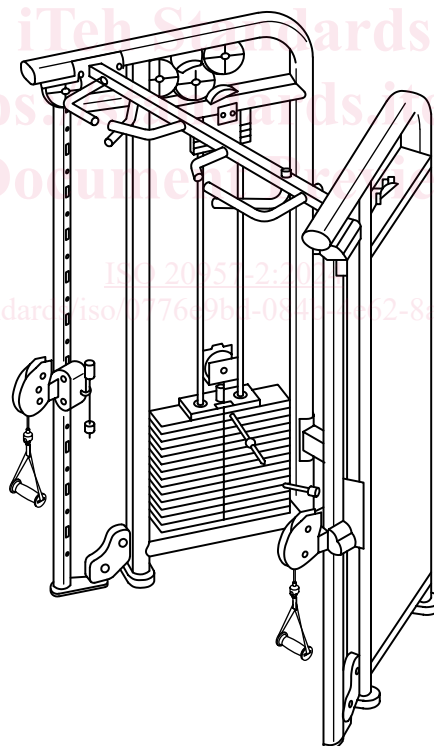
**3.11 stacked weights**

guided weights used as a selectable training load in *selectorized equipment* (3.1)

**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](#).



**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](#).

### 5.2 Loading

#### 5.2.1 Selectorized equipment and alternative resistance training equipment

For equipment classes H, S and I, the loading shall be in accordance with ISO 20957-1:2013.

#### 5.2.2 Externally loaded equipment

##### 5.2.2.1 Weight posts intended for training

For classes S and I, the training weight posts shall withstand a static load of 6 times the maximum load, as specified by the manufacturer for the training weight post being evaluated.

For class H, the training weight posts shall withstand a static load of 4 times the maximum load, as specified by the manufacturer for the training weight post being evaluated.

Test in accordance with [6.3.1](#).

After the test, the training equipment shall not be broken or have visible signs of fracture or cracking and shall still function as intended by the manufacturer.

##### 5.2.2.2 Weight posts intended for storage

For classes S and I, the storage weight posts shall withstand a single static load of 4 times the maximum load, as specified by the manufacturer for the storage weight post being evaluated.

For class H, the storage weight posts shall withstand a single static load of 2,5 times the maximum load as specified by the manufacturer for the storage weight post being evaluated.

Test in accordance with [6.3.2](#).

After the test, the training equipment shall not be broken or have visible signs of fracture or cracking and shall still function as intended by the manufacturer.