

## EHITUSE KAUBATÕSTUKID. OSA 1: LIGIPÄÄSETAVATE PLATVORMIDEGA TÕSTUKID

Builders' hoists for goods - Part 1: Hoists with  
accessible platforms

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 12158-1:2021 sisaldab Euroopa standardi EN 12158-1:2021 ingliskeelset teksti.	This Estonian standard EVS-EN 12158-1:2021 consists of the English text of the European standard EN 12158-1:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 01.12.2021.	Date of Availability of the European standard is 01.12.2021.
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English Version

## Builders' hoists for goods - Part 1: Hoists with accessible platforms

Monte-matériaux - Partie 1 : Monte-matériaux à plates-formes accessibles

Bauaufzüge für den Materialtransport - Teil 1: Aufzüge mit betretbarer Plattform

This European Standard was approved by CEN on 17 October 2021.

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## European foreword

This document (EN 12158-1:2021) has been prepared by Technical Committee CEN/TC 10 “Lifts, escalators and moving walks”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by June 2022, and conflicting national standards shall be withdrawn at the latest by December 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12158-1:2000+A1:2010.

In comparison with the previous edition, the following technical modifications have been made:

- a) static calculations;
- b) out-of-service wind;
- c) safety requirements for platform locking;
- d) enclosures for platform and landing gates;
- e) requirements for platform inclination on twin-masted units;
- f) integration of performance levels according to EN ISO 13849-1:2015;
- g) monitoring of the inadvertent brake release.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZA, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Introduction

This document is one of a series of standards produced by CEN/TC 10/SC 1 “Building hoists” as part of the CEN programme of work to produce machinery safety standards.

The document is a type-C standard relating to safety for builder’s hoists for goods.

This document is a type-C standard as stated in EN ISO 12100:2010.

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

- machine manufacturers (small, medium and large enterprises);
- health and safety bodies (regulators, accident prevention organizations, market surveillance, etc.).

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

- machine users/employers (small, medium and large enterprises);
- machine users/employees (e.g. trade unions, organizations for people with special needs);
- service providers, e.g. for maintenance (small, medium and large enterprises);
- consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

The machinery concerned and the extent to which hazards, hazardous situations or hazardous events are covered are indicated in the scope of this document. In addition, machinery shall comply as appropriate with EN ISO 12100:2010 for hazards which are not covered by this document.

When provisions of this type-C standard are different from those which are stated in type-A or -B standards, the provisions of this type-C standard take precedence over the provisions of the other standards for machines that have been designed and built according to the provisions of this type-C standard.

## 1 Scope

**1.1** This document deals with power-operated temporarily installed builder's hoists (referred to as "hoists" in this document) intended for use by persons who are permitted to enter sites of engineering and construction, serving landing levels, having a load-carrying device:

- designed for the transportation of goods only;
- guided;
- travelling vertically or along a path within 15° max. of the vertical;
- supported or sustained by drum-driven wire rope, chain, rack and pinion or an expanding linkage mechanism;
- where masts, when erected, require or do not require support from separate structures;
- which permits the access of instructed persons during loading and unloading;
- which are driven by appointed persons;
- which permits, if necessary, during erection, dismantling, maintenance and inspection, the access and travel by persons who are competent and authorized.

**1.2** The document deals with the significant hazards, hazardous situations or hazardous events relevant to the machine as listed in Annex C which arise during the various phases in the life of the machine and describes methods for the elimination or reduction of these hazards when it is used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer.

**1.3** This document does not specify the additional requirements for:

- hydraulic installations;
- operation in severe conditions (e.g. extreme climates, strong magnetic fields);
- lightning protection;
- operation subject to special rules (e.g. potentially explosive atmospheres);
- electromagnetic compatibility (emission, immunity);
- handling of loads the nature of which could lead to dangerous situations (e.g. molten metal, acids/bases, radiating materials, fragile loads);
- the use of combustion engines;
- the use of remote controls;
- hazards occurring during manufacture;
- hazards occurring as a result of mobility;
- hazards occurring as a result of being erected over a public road;

- earthquakes;
- noise;
- ergonomics;
- fixed guards;
- operator intervention.

**1.4** This document does not apply to:

- builder's hoists for persons and materials;
- lifts according to EN 81-3:2000+A1:2008 and EN 81-20:2020;
- inclined hoists according to EN 12158-2:2000+A1:2010;
- work cages suspended from lifting appliances;
- work platforms carried on the forks of fork trucks;
- transport platforms according to EN 16719:2018;
- work platforms;
- funiculars;
- lifts specially designed for military purposes;
- mine lifts;
- theatre elevators;
- special purpose lifts.

**1.5** This document deals with the hoist installation. It includes the base frame and base enclosure but excludes the design of any concrete, hard core, timber or other foundation arrangement. It includes the design of mast ties but excludes the design of anchorage bolts to the supporting structure. It includes the landing gates and their frames but excludes the design of any anchorage fixing bolts to the supporting structure.

**1.6** This document does not apply to builders' hoists for goods (hoists with accessible platforms) manufactured before the date of publication of this document by CEN.

## 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.

EN 81-20:2020, *Safety rules for the construction and installation of lifts — Lifts for the transport of persons and goods — Part 20: Passenger and goods passenger lifts*

EN 1999-1-1:2007,<sup>1</sup> *Eurocode 9: Design of aluminium structures — Part 1-1: General structural rules*

EN 60204-1:2018, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements*

EN 60204-32:2008, *Safety of machinery — Electrical equipment of machines — Part 32: Requirements for hoisting machines*

EN 60529:1991,<sup>2</sup> *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

EN IEC 60947-4-1:2019, *Low-voltage switchgear and controlgear — Part 4-1: Contactors and motor-starters — Electromechanical contactors and motor-starters*

EN 60947-5-1:2017, *Low-voltage switchgear and controlgear — Part 5-1: Control circuit devices and switching elements — Electromechanical control circuit devices*

EN ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction (ISO 12100:2010)*

EN ISO 13849-1:2015, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2015)*

EN ISO 13849-2:2012, *Safety of machinery — Safety-related parts of control systems — Part 2: Validation (ISO 13849-2:2012)*

EN ISO 13850:2015, *Safety of machinery — Emergency stop function — Principles for design (ISO 13850:2015)*

EN ISO 13857:2019, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2019)*

EN ISO 14118:2018, *Safety of machinery — Prevention of unexpected start-up (ISO 14118:2017)*

EN ISO 14119:2013, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection (ISO 14119:2013)*

ISO 2394:2015, *General principles on reliability for structures*

ISO 2408:2017, *Steel wire ropes — Requirements*

<sup>1</sup> As impacted by EN 1999-1-1:2007/A1:2009 and EN 1999-1-1:2007/A2:2013.

<sup>2</sup> As impacted by EN 60529:1991/corrigendum May 1993, EN 60529:1991/A1:2000, EN 60529:1991/A2:2013, EN 60529:1991/AC:2016-02 and EN 60529:1991/A2:2013/AC:2019-02.

ISO 4302:2016, *Cranes — Wind load assessment*

ISO 4309:2017, *Cranes — Wire ropes — Care and maintenance, inspection and discard*

ISO 6336-1:2019, *Calculation of load capacity of spur and helical gears — Part 1: Basic principles, introduction and general influence factors*

ISO 6336-2:2019, *Calculation of load capacity of spur and helical gears — Part 2: Calculation of surface durability (pitting)*

ISO 6336-3:2019, *Calculation of load capacity of spur and helical gears — Part 3: Calculation of tooth bending strength*

ISO 6336-5:2016, *Calculation of load capacity of spur and helical gears — Part 5: Strength and quality of materials*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010 and the following apply.

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

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

#### 3.1

##### **builder's hoist**

temporary lifting machine serving landing levels on sites of engineering and construction with a platform, cage or other load-carrying device which is guided

#### 3.2

##### **working load**

##### **rated load**

maximum load which the hoist has been designed to carry in service

#### 3.3

##### **rated speed**

speed of the platform for which the equipment has been designed

#### 3.4

##### **wire rope hoist**

hoist which uses wire rope as the load suspension system

#### 3.5

##### **positive drive**

drive using means other than friction

#### 3.7

##### **rack and pinion hoist**

hoist which uses a toothed rack and pinion as the load suspension system