



SLOVENSKI STANDARD
SIST EN 16808:2020

01-oktober-2020

**Petrokemična industrija ter industrija za predelavo nafte in zemeljskega plina -
Varnost strojev - Ročna dvigala**

Petroleum, petrochemical and natural gas industries - Safety of machineries - Manual elevators

Erdöl-, petrochemische und Erdgasindustrie - Sicherheit von Maschinen -Manuelle Elevatoren

Industries du pétrole, de la pétrochimie et du gaz naturel - Sécurité des machines - Élévateurs manuels

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Petroleum, petrochemical and natural gas industries - Safety of machineries - Manual elevators

Industries du pétrole, de la pétrochimie et du gaz
naturel - Sécurité des machines - Élévateurs manuels

Erdöl-, petrochemische und Erdgasindustrie -
Sicherheit von Maschinen - Manuelle Elevatoren

This European Standard was approved by CEN on 6 April 2020.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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EN 16808:2020 (E)**European foreword**

This document (EN 16808:2020) has been prepared by Technical Committee CEN/TC 12 “Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries”, the secretariat of which is held by NEN and CYS.

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of an identical text or by endorsement, at the latest by February 2021, and conflicting national standards shall be withdrawn at the latest by February 2021.

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 has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

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

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.

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Introduction

This document specifies general principles for the design and production of manually operated elevators for the oil and gas industries, in on- and offshore applications. It is intended for use by manufacturers, designers, standards makers and other interested parties.

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;
- health and safety bodies (regulators, accident prevention organisations, 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, organisations for people with special needs);
- service providers (e.g. for maintenance of machinery intended for use by customers).

The abovementioned 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.

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

EN 16808:2020 (E)**1 Scope**

This document specifies general safety requirements for the design, testing and production of manually operated elevators. The requirements are applicable for on- and off-shore applications of such elevators in the petroleum and petrochemical industries.

This document deals with significant hazards, hazardous situations and events, as listed in Annex A, relevant to elevators when used as intended and under the conditions of misuse foreseeable by the manufacturer.

This document does not cover any other type of elevator. It is not applicable to the following types of products:

- lifting nubbins;
- lifting plugs;
- lifting subs;
- internal gripping devices;
- equipment for lifting tubular from and onto a vessel;
- elevator links or bails.

This document is not applicable to manually operated elevators manufactured before the date of this publication.

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2 Normative references

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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 614-1:2006+A1:2009, *Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles*

EN 614-2:2000+A1:2008, *Safety of machinery — Ergonomic design principles — Part 2: Interactions between the design of machinery and work tasks*

EN ISO 14120:2015, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards (ISO 14120:2015)*

EN ISO 80079-36:2016, *Explosive atmospheres — Part 36: Non-electrical equipment for explosive atmospheres — Basic method and requirements (ISO 80079-36:2016)*

EN ISO 80079-37:2016, *Explosive atmospheres — Part 37: Non-electrical equipment for explosive atmospheres — Non-electrical type of protection constructional safety "c", control of ignition sources "b", liquid immersion "k" (ISO 80079-37:2016)*

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

EN ISO 13534:2000, *Petroleum and natural gas industries — Drilling and production equipment — Inspection, maintenance, repair and remanufacture of hoisting equipment (ISO 13534:2000)*

EN ISO 13535:2000, *Petroleum and natural gas industries — Drilling and production equipment — Hoisting equipment (ISO 13535:2000)*

EN ISO 13854:2019, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body (ISO 13854:2017)*

ISO 3864-1:2011, *Graphical symbols — Safety colours and safety signs — Part 1: Design principles for safety signs and safety markings*

ISO 3864-2:2016, *Graphical symbols — Safety colours and safety signs — Part 2: Design principles for product safety labels*

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

3.1

danger zone

any space within and/or around machinery in which a person can be exposed to a hazard

[SOURCE: EN ISO 12100:2010, 3.11]

3.2

design verification

process of examining the result of a given design or development activity to determine conformity with specified requirements

[SOURCE: CEN ISO/TS 29001:2011, 3.1.8]

3.3

DROPS

common term used to indicate 'dropped objects'

Note 1 to entry: DROPS is an industry-wide initiative focused on preventing dropped objects, with the ultimate goal of delivering a second nature dropped objects prevention strategy across our industry.

3.4

elevator

lifting accessory to be used for lifting and handling of tubular in the on- and offshore drilling industry or in the vicinity of the drill floor

3.5

fatigue life

number of stress cycles of a specific character that an elevator sustains before failure of a specified nature occurs

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3.6

insert

gripping/holding device, with or without teeth that embed into the side of the tubular, which can create friction in order to suspend the tubular

3.7

lock, verb

ensure that the securing is maintained

3.8

manual elevator

elevator (for wrapping, securing and locking) operated manually without automated actions by use of any external energy power supply

Note 1 to entry: A manual elevator may contain internal energy-loaded devices, e.g. accumulators, springs etc., but it does not use any external energy power supply (e.g. hydraulic power supply) apart from human force or the movement of the elevator relative to tubular.

Note 2 to entry: Various types of manual elevator are defined in 3.8.1 to 3.8.9 and shown in Figures 1 to 7. Where manual elevators is used in this document, the provisions apply at least to these types of manual elevators.

3.8.1

side door elevator

manual elevator comprising one major structure by which the tubular is picked up, and having a door with a closing mechanism to keep the tubular in position

EXAMPLE See Figure 1.



Figure 1 — Side door elevator

3.8.2

centre-latch elevator

manual elevator with two (nearly) mirrored body halves, each half equipped with a suspension point split in the centre and having a closing mechanism to keep the tubular in position

EXAMPLE See Figure 2.



Figure 2 — Centre-latch elevator

3.8.3**slip-type elevator**

manual elevator with tapered slip elements for gripping the tubular after the elevator is closed

Note 1 to entry: The tubular sets the slip by an upset, pushing the slip downward.

EXAMPLE See Figure 3.



Figure 3 — Slip-type elevator with slips and setting ring

3.8.4**insert-type elevator**

manual elevator with inserts for suspending the tubular after the elevator is closed

Note 1 to entry: The tubular sets the inserts by an upset, pushing the inserts downward.

EXAMPLE See Figure 4.

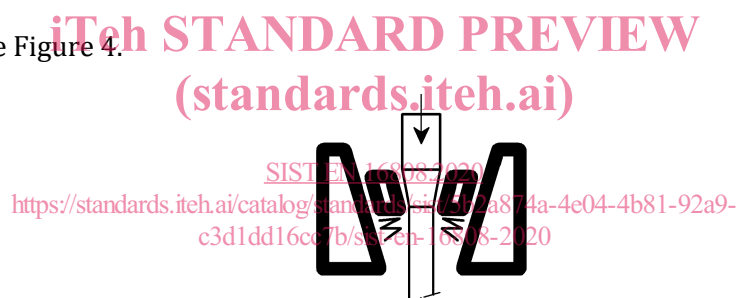


Figure 4 — Insert-type elevator

3.8.5**closed-ring elevator**

manual elevator having a frame which forms a closed ring and is equipped with a mechanism which makes sufficient contact in order to lift the tubular which, during normal operation, is axially loaded and unloaded

Note 1 to entry: Closed-ring elevators can be equipped with means to be split and removed from the string in a non-axial way for emergency or special situations.

EXAMPLE See Figure 5.

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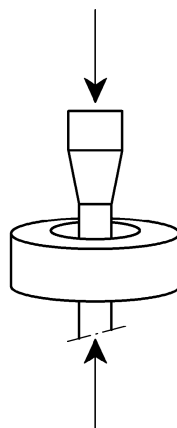


Figure 5 — Loading of closed-ring elevator in the axial direction

3.8.6

elevator with jaws

manual elevator with two mirror-image jaws which act as the closing mechanism

EXAMPLE See Figure 6.



Figure 6 — Elevator with jaws

3.8.7

elevator with hinge pins only

manual elevator with removable hinge pin(s) which act as the closing mechanism

EXAMPLE See Figure 7.

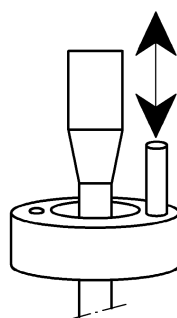


Figure 7 — Elevator with hinge pins only