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Interested committees:

Title: Draft BS EN 13157 Cranes - Safety - Hand powered cranes.

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

English Version

Cranes - Safety - Hand powered cranes

Appareils de levage à charge suspendue - Sécurité -
Appareils de levage à bras

Krane - Sicherheit - Handbetriebene Krane

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 147.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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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.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (prEN 13157:2025) has been prepared by Technical Committee CEN/TC 147 “Cranes - Safety”, the secretariat of which is held by SFS.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 13157:2004+A1:2009.

The main modifications between EN 13157:2004+A1:2009 and prEN 13157 are

- Standardization of the design verification by calculation.
- Allowance for higher grades of chain.
- Simplification of the the verification tables
- Improvements to the general quality of the hand powered cranes placed on the EU market.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation see informative Annex ZA and Annex ZB, which are integral parts of this document.

Introduction

This document has been prepared to be a harmonized standard to provide one means for hand powered cranes to conform to the essential health and safety requirements of the Machinery Directive, as amended.

This European Standard is a type-C standard as stated in EN ISO 12100.

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);

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 are covered are indicated in the scope of this standard.

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

1 Scope

This document specifies requirements for the following hand powered cranes defined in Clause 3:

- hand chain blocks;
- lever hoists;
- jaw winches;
- hand powered trolleys supporting lifting machines;

NOTE Hand powered trolleys placed on the market on their own and intended to be used with products within the scope of this document are considered as interchangeable equipment as defined in Directive 2006/42/EC.

- drum winches;
- pulley blocks.

This document deals with the following significant hazards, hazardous situations or hazardous events relevant to hand powered cranes, when it is used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer:

- mechanical hazards;
- thermal hazards;
- material/substance hazards;
- ergonomic hazards;
- hazards associated with the environment in which they are used.

This document does not cover hazards related to the lifting of persons.

This document is not applicable to hand powered cranes for:

- use in ambient temperature outside the range of - 10°C to + 50°C, however for some lifting medium the minimum temperature will be higher than -10 °C;
- use in direct contact with food stuffs or pharmaceuticals requiring a high level of cleanliness for hygiene reasons;
- handling specific hazardous materials (e.g. explosives, hot molten masses, radiating materials);
- operation in an explosive atmosphere.

This document is not applicable to hand powered cranes manufactured before the date of its publication.

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 818-7:2002+A1:2008, *Short link chain for lifting purposes - Safety - Part 7: Fine tolerance hoist chain, Grade T (Types T, DAT and DT)*

EN 1677-2:2000+A1:2008, *Components for slings - Safety - Part 2: Forged steel lifting hooks with latch, Grade 8*

EN 1677-5:2001+A1:2008, *Components for slings - Safety - Part 5: Forged steel lifting hooks with latch - Grade 4*

EN 12385-1:2002+A1:2008, *Steel wire ropes - Safety - Part 1: General requirements*

EN 12385-4:2002+A1:2008, *Steel wire ropes - Safety - Part 4: Stranded ropes for general lifting applications*

EN 13001-2:2021, *Crane safety - General design - Part 2: Load actions*

EN 13001-3-5:2016+A1:2021, *Cranes - General design - Part 3-5: Limit states and proof of competence of forged and cast hooks*

EN 13411-1:2002+A1:2008, *Terminations for steel wire ropes - Safety - Part 1: Thimbles for steel wire rope slings*

EN 13411-3:2022, *Terminations for steel wire ropes - Safety - Part 3: Ferrules and ferrule-securing*

EN 13411-4:2021, *Terminations for steel wire ropes - Safety - Part 4: Metal and resin socketing*

EN 13411-6:2004+A1:2008, *Terminations for steel wire ropes - Safety - Part 6: Asymmetric wedge socket*

EN 13411-7:2021, *Terminations for steel wire ropes - Safety - Part 7: Symmetric wedge socket*

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

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

ISO 606:2015, *Short-pitch transmission precision roller and bush chains, attachments and associated chain sprockets*

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

ISO 16872:2015, *Round steel short link chains for lifting purposes — Fine tolerance hoist chains for hand operated chain hoists — Grade VH*

ISO 16877:2015, *Round steel short link chains for lifting purposes — Fine tolerance hoist chains for hand operated chain hoists — Grade TH*

ISO 17440:2014, *Cranes — General design — Limit states and proof of competence of forged steel hooks*

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/>

3.1

working coefficient (safety coefficient)

ratio between the maximum load to which the component can be subjected without breaking and the specified maximum working load that should not be exceeded during use

3.2

combined unit

combination of a trolley and a hoist which are connected (see Figure 1)

3.3

dynamic test

testing by operating the lifting equipment to lift a test load equal to the rated capacity multiplied by the dynamic test coefficient

3.4

lifting

change in level during the movement

NOTE Lifting incorporates the vertical or the vertical and horizontal movement of the load or all combinations

3.5

rated capacity

load that the lifting equipment is designed to lift for a given operating condition (e.g. configuration, position of the load)

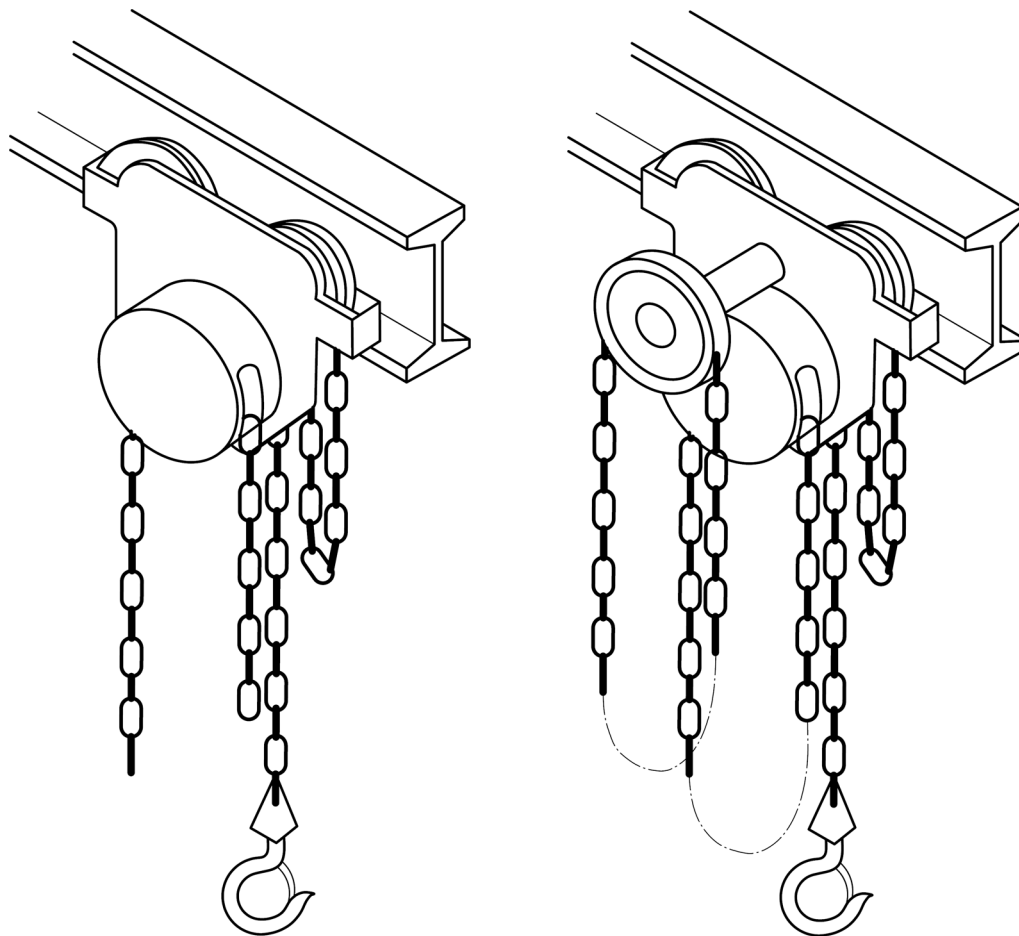


Figure 1 — Example of combined units

3.6

static test

testing of lifting equipment by applying a test load equal to the rated capacity multiplied by the static test coefficient

3.7

test coefficient

ratio between the load used for static and dynamic tests and the rated capacity

3.8

D/d ratio

ratio of the minimum pitch circle diameter of the first rope layer of the drum or sheave to the calculated minimum diameter of the rope

3.9

D/s ratio

ratio of the belt sheave and drum diameter to the webbing thickness under no tension

3.10

pitch circle diameter

twice the distance between the drum or the sheave axle and the middle of the rope or webbing in direct contact with the drum or sheaves (first layer on drum)

3.11**operation cycle**

lifting movement plus lowering movement over the minimum vertical distance such that every load bearing component of the mechanism is loaded at least once

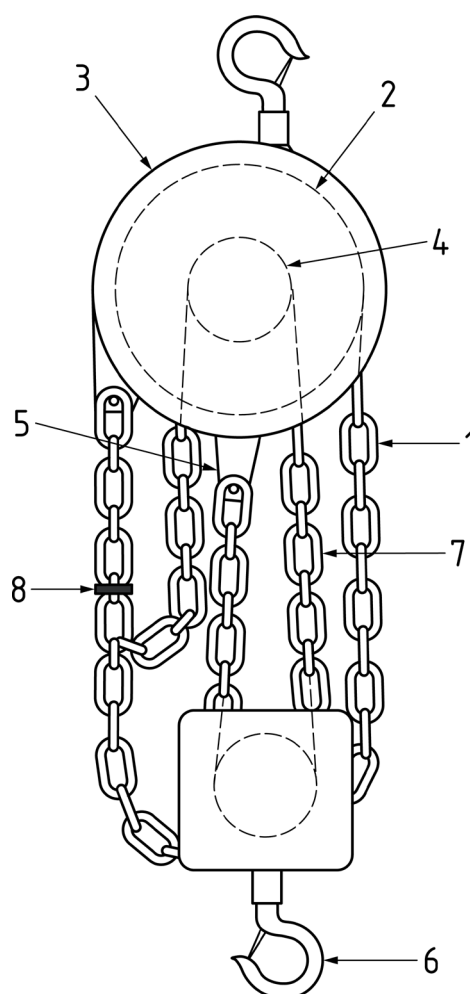
Note 1 to entry: This is for test purposes only.

3.12**chain container**

device to collect the slack load chain

3.13**hand chain block**

device for lifting and lowering a load suspended from one chain (the load chain) by means of human effort applied to another chain (the hand chain) and for holding this load (see Figure 2)

**Key**

- | | |
|--------------------|-----------------------|
| 1 hand chain | 5 fixed end anchorage |
| 2 hand chain wheel | 6 load hook |
| 3 cover | 7 load chain |
| 4 load chain wheel | 8 slack end anchor |
| | 9 top hook |

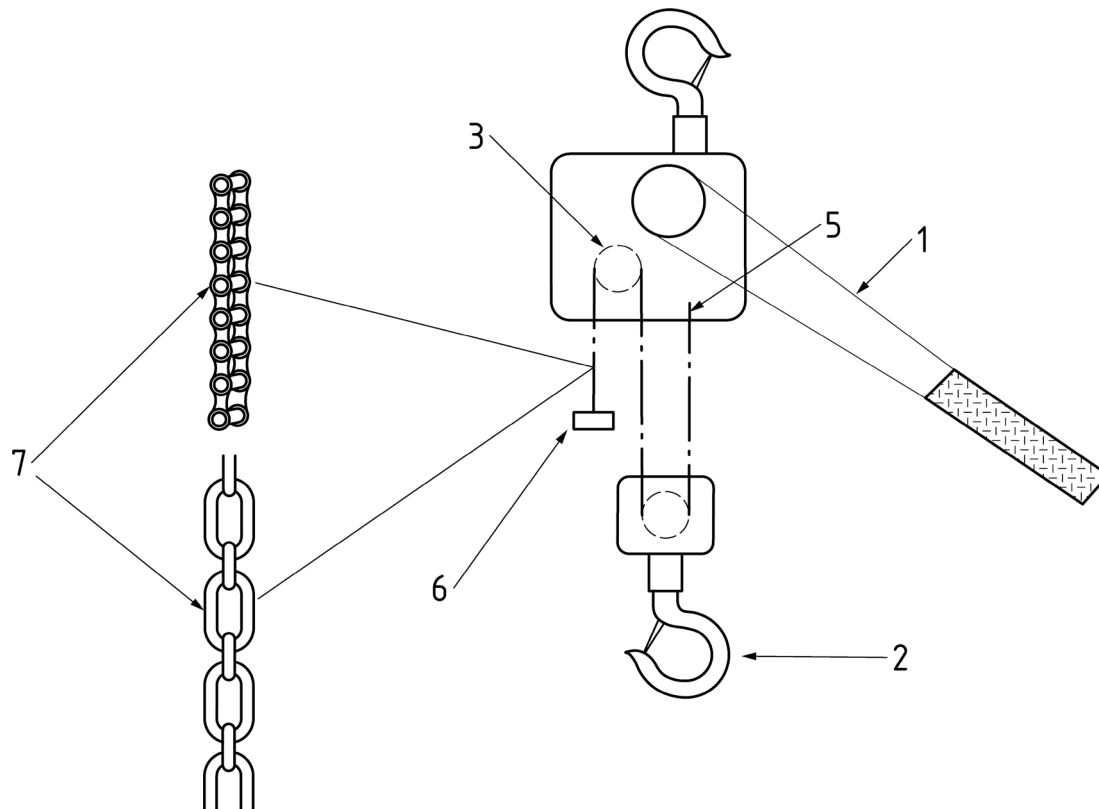
Figure 2 — Example of a hand chain block

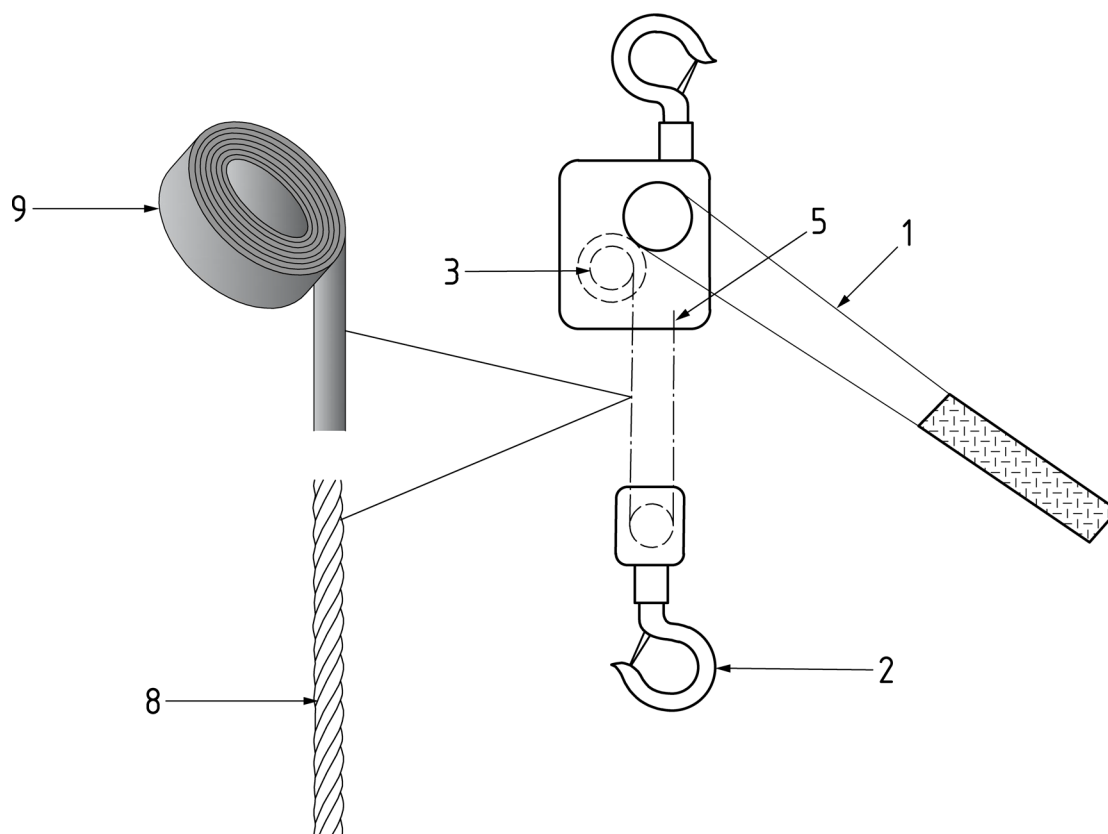
3.14

lever hoist

device for lifting and lowering a load suspended from a lifting medium by means of human effort applied to a lever and to hold it by means of a braking devices

Note 1 to entry: An arrangement drawing of a lever hoist is shown in Figure 3.





Key

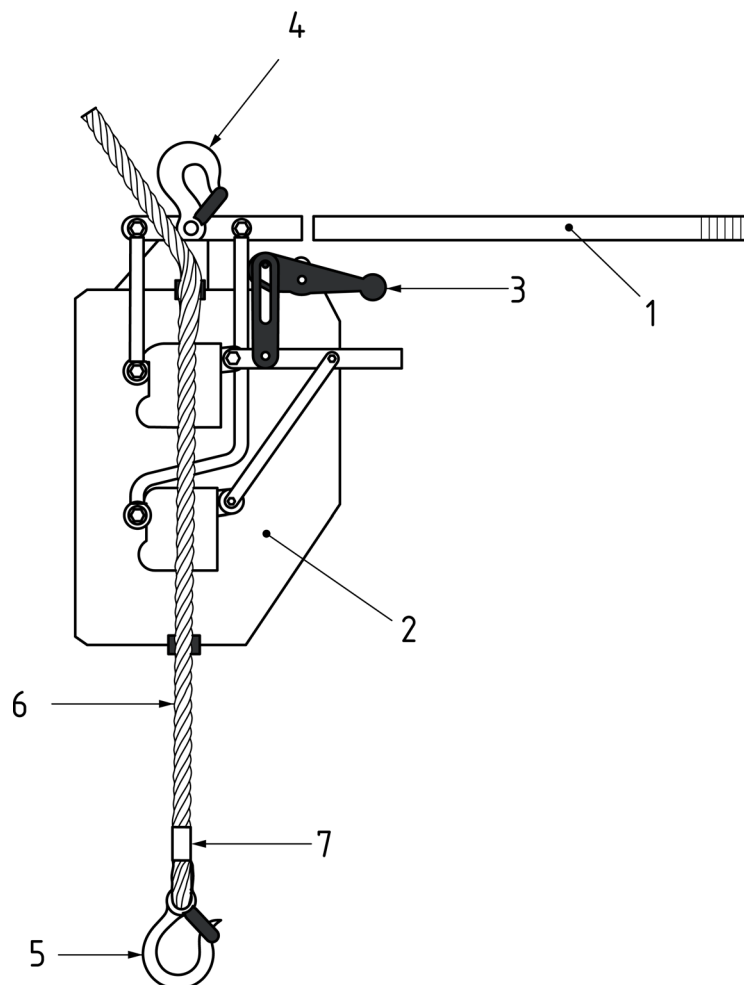
- | | |
|-----------------------|--------------------|
| 1 lever | 6 slack end anchor |
| 2 hook | 7 load chain |
| 3 drum | 8 rope |
| 4 load chain wheel | 9 webbing |
| 5 fixed end anchorage | |

Figure 3 — Example of lever hoists

3.15

jaw winches

device for lifting, lowering and holding a load by means of a rope, where the rope is gripped or moved by jaws using human effort on a lever or levers (see Figure 4)

**Key**

- | | | | |
|---|--|---|------------------|
| 1 | removable lever | 5 | hook |
| 2 | guard case of the jaw and actuating mechanisms | 6 | rope |
| 3 | declutching lever | 7 | rope termination |
| 4 | anchorage | | |

Figure 4 — Example of a jaw winch**3.16****hand powered trolleys**

equipment fitted with wheels which are designed for the hand powered travelling of a hooked or combined lifting machine along a monorail

3.17**geared travel trolley**

hand powered trolley permitting horizontal travel, driven by a hand wheel which is operated by an operating chain (see Figure 5)