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STN	**Žeriavy Všeobecný návrh Časť 3-5: Medzné stavy a overovanie spôsobilosti kovaných a odlievaných hákov**	**STN EN 13001-3-5 27 0043**

Cranes - General design - Part 3-5: Limit states and proof of competence of forged and cast hooks

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 03/26

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English Version

Cranes - General design - Part 3-5: Limit states and proof of competence of forged and cast hooks

Appareils de levage à charge suspendue - Conception générale - Partie 3-5 : États limites et vérification des crochets forgés et moulés

Krane - Konstruktion allgemein - Teil 3-5: Grenzzustände und Sicherheitsnachweis von geschmiedeten und gegossenen Haken

This European Standard was approved by CEN on 17 November 2025.

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This European Standard exists 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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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 13001-3-5:2025) has been prepared by Technical Committee CEN/TC 147 “Crane — Safety”, the secretariat of which is held by SFS.

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of an identical text or by endorsement, at the latest by June 2026 and conflicting national standards shall be withdrawn at the latest by June 2026.

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 13001-3-5:2016+A1:2021.

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.

The major changes in this document compared to EN 13001-3-5:2016+A1:2021 are:

— move of technical content of Clauses 4.1.3, 4.2 and 4.3 into informative annexes;

— removal of the concept “Cold forming by proof loading” out of the standard;

— changes in 6.5.4, 6.5.5 and 6.6.4 regarding design factors for fatigue design;

— move of Clauses 7 and 8 into informative annexes;

— recalculated numeric values in Annex E due to changes of design factors;

— changes in Annex ZA, addition of a new Annex ZB for Regulation (EU) 2023/1230.

This European Standard is one part of the EN 13001 series. The other parts are as follows:

— *Part 1: General principles and requirements*

— *Part 2: Load actions*

— *Part 3-1: Limit states and proof of competence of steel structures*

— *Part 3-2: Limit states and proof of competence of wire ropes in reeving systems*

— *Part 3-3: Limit states and proof of competence of wheel/rail contacts*

— *Part 3-4: Limit states and proof of competence of machinery — Bearings*[1]

— *Part 3-6: Limit states and proof of competence of machinery — Hydraulic cylinders*

[1] Under revision.

— *Part 3-8: Limit states and proof of competence of machinery — Shafts*[2]

For the overview of standards published by CEN/TC 147, see Annex M.

Information on safe use of crane hooks is given in Annex L.

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 organizations 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, Türkiye and the United Kingdom.

[2] Under preparation. Stage at the time of publication: FprEN 13001-3-8.

Introduction

This document has been prepared to provide a means for the mechanical design and theoretical verification of crane hooks to conform to essential health and safety requirements. This document also establishes interfaces between the user (purchaser) and the designer, as well as between the designer and the component manufacturer, in order to form a basis for selecting cranes and components.

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.

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 covers shank hooks made of steel forgings or steel castings, including stainless steel, with shanks machined for a thread/nut suspension of the hook.

Plate hooks, which are those, assembled of one or several parallel parts of rolled steel plates, are not covered by this document.

The significant hazardous situations and hazardous events that could result in risks to persons during intended use and reasonably foreseeable misuse are identified in Annex N. Clauses 4 to 6 of this document provide requirements and methods to reduce or eliminate the risks of exceeding the limits of strength (yield, ultimate, fatigue, brittle fracture) considering temperature limits of material.

The hazards covered by this document are identified in Annex N. This document is applicable to hooks installed in cranes manufactured after the date of approval of this European Standard by CEN and serves as a reference base for product standards of particular crane types.

This part of EN 13001 deals only with the limit state method in accordance with EN 13001-1:2015.

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 10025-3:2019, *Hot rolled products of structural steels — Part 3: Technical delivery conditions for normalized/normalized rolled weldable fine grain structural steels*

EN 10213:2007+A1:2016, *Steel castings for pressure purposes*

EN 10222-4:2017+A1:2021, *Steel forgings for pressure purposes — Part 4: Weldable fine grain steels with high proof strength*

EN 10250-2:2022, *Open die steel forgings for general engineering purposes — Part 2: Non-alloy quality and special steels*

EN 10250-3:2022, *Open die steel forgings for general engineering purposes — Part 3: Alloy special steels*

EN 10340:2007, *Steel castings for structural uses*

EN 12680-1:2003, *Founding — Ultrasonic examination — Part 1: Steel castings for general purposes*

EN 13001-1:2015, *Cranes — General design — Part 1: General principles and requirements*

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

EN ISO 148-1:2016, *Metallic materials — Charpy pendulum impact test — Part 1: Test method (ISO 148-1:2016)*

EN ISO 642:2024, *Steel — Hardenability test by end quenching (Jominy test) (ISO 642:2024)*

EN ISO 643:2024, *Steels — Micrographic determination of the apparent grain size (ISO 643:2024)*

EN ISO 683-2:2018, *Heat-treatable steels, alloy steels and free-cutting steels — Part 2: Alloy steels for quenching and tempering (ISO 683-2:2016)*

EN ISO 898-2:2022, *Fasteners — Mechanical properties of fasteners made of carbon steel and alloy steel — Part 2: Nuts with specified property classes (ISO 898-2:2022)*

EN ISO 21920-2:2022, *Geometrical product specifications (GPS) — Surface texture: Profile — Part 2: Terms, definitions and surface texture parameters (ISO 21920-2:2021, Corrected version 2022-06)*

EN ISO 6892-1:2019, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature (ISO 6892-1:2019)*

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

ISO 965-1:2013, *ISO general purpose metric screw threads — Tolerances — Part 1: Principles and basic data*

ISO 4306-1:2007, *Cranes — Vocabulary — Part 1: General*