SLOVENSKI STANDARD
SIST EN 13586:2021

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Nadomešča:
SIST EN 13586:2004+A1:2008

Dvigala (žerjavi) - Dostop

Cranes - Access

Krane - Zugang

Appareils de levage à charge suspendue - Accès

Ta slovenski standard je istoveten z: **EN 13586:2020**

ICS:

53.020.20	Dvigala	Cranes

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English Version

Cranes - Access

Appareils de levage à charge suspendue - Accès

Krane - Zugang

This European Standard was approved by CEN on 16 November 2020.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 13586:2020) has been prepared by Technical Committee CEN/TC 147 “Cranes safety”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by June 2021, and conflicting national standards shall be withdrawn at the latest by June 2021.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 supersedes EN 13586:2004+A1:2008.

The main technical changes in this edition compared to EN 13586:2004+A1:2008 are in 5.5, 5.10, 5.11, 5.13, Clause 6 and Clause 7. Clause 4 and Annex ZA have been updated to conform with the valid drafting rules. Additionally, the arrangements of figures and tables have been improved for reasons of clarity and technical and editorial accuracy.

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 2006/42/EC.

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

For the relationship with other European Standards for cranes, see Annex A.

Introduction

This document has been prepared to be a harmonized standard to provide one means for crane access to conform with the essential health and safety requirements of the Machinery Directive, as mentioned in Annex ZA.

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);

— service providers, e.g. for maintenance (small, medium and large enterprises);

— machine users/employers (small, medium and large enterprises);

— health and safety bodies (regulators, accident prevention organizations, market surveillance, etc.).

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 and hazardous events are covered, are indicated in the scope of this document.

When provisions of this type C standard are different from those which are stated in a type B standard, 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

This document specifies design requirements for non-powered access installed on cranes.

NOTE 1 For other type of access, a requirement for information to be supplied is specified.

Slidable, retractable means of access are excluded from the scope, except movable hoop guards.

This document covers means of access to control stations and all access required for maintenance, certain erection and dismantling operations.

For those cranes which are intended to be erected and dismantled frequently to change their places of work, specific requirements for the access needed during these operations are not covered by this document and should be given in the appropriate European Standards for specific crane types.

Lighting of means of access is not covered by this document and should be given in the appropriate European Standards for specific crane types.

NOTE 2 Specific requirements for access on particular types of cranes are given in the appropriate European Standard for the particular crane type.

The requirements given in this document do not take into account the safety distances related to:

— guarding against hazard from moving parts;

— relative movement between crane and adjacent structure or the ground/floor;

— hazardous surface temperature;

— electrical equipment.

The significant hazards covered by this document are identified in Clause 4.

This document is not applicable to cranes which are manufactured before the date of publication by CEN of this document.

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 12644-1:2001+A1:2008, *Cranes - Information for use and testing - Part 1: Instructions*

EN 13001-3-1:2012+A2:2018, *Cranes - General Design - Part 3-1: Limit States and proof competence of steel structure*

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

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

EN ISO 14122-4:2016, *Safety of machinery - Permanent means of access to machinery - Part 4: Fixed ladders (ISO 14122-4:2016)*

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

3.1
rest platform
standing area for persons to rest, situated at intervals between flights of ladders or stairs

3.2
platform
standing area for persons to work from, e.g. for maintenance or inspection

3.3
handrail
device, which provides continuous hand support between two locations

3.4
handhold
means of providing support by a single hand placement

3.5
foothold
means of providing support for one or two feet for vertical access

3.6
manhole
access opening to allow the passage of persons, and which could have a cover fitted

3.7
hatch
access opening to allow the passage of persons, provided with a cover openable without use of tools

4 List of significant hazards

Table 1 of this clause contains all the significant hazards as listed in CEN Guide 414, hazardous situations and events, as far as they are dealt with in this document, identified by risk assessment as significant for this type of machinery and which require action to eliminate or reduce the risk.

Table 1 — List of significant hazards and associated requirements

No.	Hazard	Relevant clause(s) in this document
1	**Mechanical hazards**	
1.1	Inadequacy of mechanical strength of the crane and its parts	5.7.2, 5.13
1.2	Crushing hazard	5.10, 5.12
1.3	Shearing hazard	5.10
1.5	Cutting or severing hazard	5.10, 5.12
1.6	Entanglement hazard	5.9
1.7	Drawing-in or trapping hazard	5.6.1, 5.10, 5.12
1.8	Slipping, tripping and falling	5.3, 5.4, 5.6.1, 5.7, 5.8, 5.9, 5.10, 5.11
1.9	Falling or ejected objects or fluids	5.1, 5.3.3, 5.3.4, 5.10
8	**Ergonomic hazards**	
8.1	Unhealthy postures or excessive efforts	5.1, 5.2
8.2	Inadequate consideration of hand-arm or foot-leg anatomy	5.3 to 5.12
8.3	Use of personal protection equipment	5.1, 5.4, 5.6.1, 7

5 Safety requirements and protective measures

5.1 Selection of means of access

Means of access shall conform to the safety requirements and protective measures of this clause. In addition, the equipment shall be designed in accordance with the principles of EN ISO 12100:2010 for hazards relevant but not significant which are not dealt with by this document.

The following factors shall be taken into account, when determining means of access for cranes:

— frequency of use;

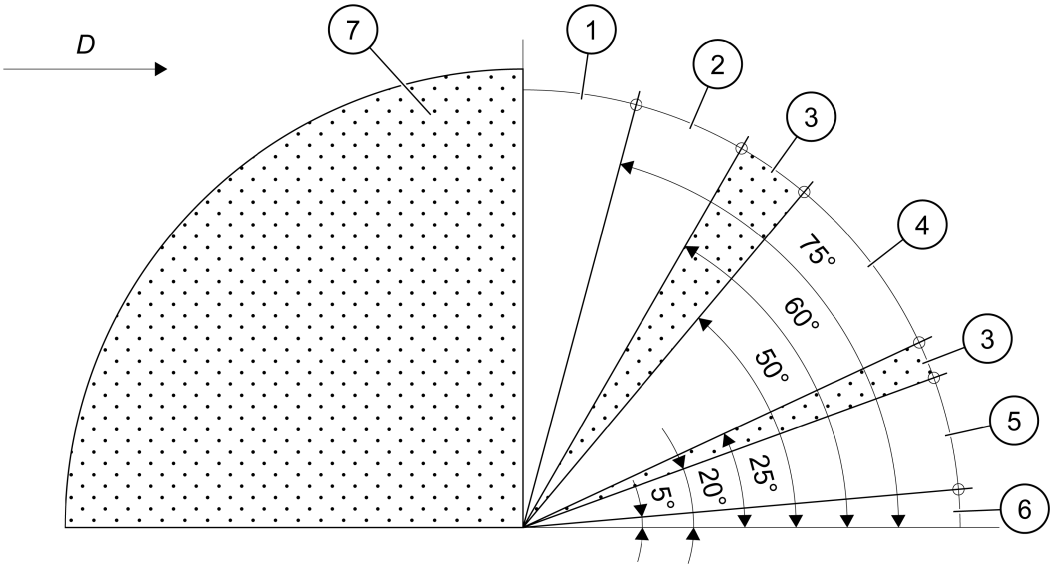
— equipment and tools to be carried;

— vertical distance to cover;

— nature of use, e.g. regular operator access, maintenance, inspection.

Provision of access, when moving from one level to another, should be in the preferential order: stair, step ladder and rung ladder. Furthermore, permanent protective equipment (e.g. hoop guard, side protection) shall be preferred to personal protection equipment. Where personal protection equipment is required, continuous system avoiding the necessity to connect and disconnect shall be preferred.

The type of the means of the access depending on its steepness shall be selected in accordance with the Figure 1.



Key

1	rung ladder	5	inclined walkway
2	step ladder	6	walkway
3	range to be avoided	7	not permitted zone
4	stair	D	access direction when going upwards

Figure 1 — Ranges of angles for different means of access in their working position

For structural requirements of means of access, the term “ladder” is used to refer both to rung ladders and step ladders.

Where the vertical height between point of access and operator’s control station is more than 30 m, the crane shall be designed with provisions to receive a powered access. Where a powered access system is provided, an additional access way of Type 1 shall also be provided.

Other means of access than those in the scope of this standard may be utilized, e.g. for inspection locations with an inspection interval longer than one year, for emergency exit or for access for erection and dismantling. Access in such cases may be designed to rely on use of personal fall protection equipment against falls from a height (see EN 363:2018 and EN 795:2012) or use of mobile elevating work platforms.

5.2 Classification of access

Type 1 access shall be provided in the following cases, as relevant:

— the main access way of the crane operator to the control station and to starting equipment;

— the access way to maintenance locations, with a maintenance or inspection period shorter than one month.

Type 2 access may be provided, instead of Type 1 access, in the following cases, as relevant:

— the access way to maintenance locations, with a maintenance or inspection period one month or longer;

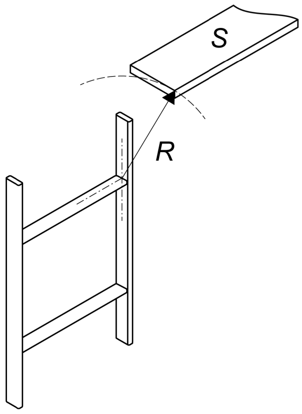
— emergency exit;

— access for erection and dismantling.

5.3 General design principles

5.3.1 When ascending or descending provisions shall be made to provide simultaneous three-point support; two hand holds and one foot hold or two feet holds and one hand hold.

5.3.2 Where a lateral body move is necessary from a rung of a ladder to another support surface, the distance between the step or rung and the nearest edge of the support surface shall be within a spherical radius of 300 mm or shorter, see Figure 2.



Key

R spherical radius

S support surface

Figure 2 — Distance between a step or rung and the nearest edge of any support surface

5.3.3 Means of access, walking and standing areas shall:

— have their working position(s) designated; (for example platform on articulated boom needs defined position of the boom for the access);

— take into account the number of the persons, and the presence of objects such as tools and spare parts;

— be constructed of materials specified as being incombustible and with slip resistant surfaces, which do not retain liquid. See Annex B.

The steps between adjacent, fixed (non-moveable) floor sections shall not exceed 8 mm in height. This requirement does not apply in cases, where access is directly on a structural surface and the step is due to welded joint of the structure.

Every control station shall have at least one exit onto a fixed means of access. An alternative means of egress shall be provided, where a fixed means of access cannot be reached from all working positions of the control station or of the crane.

5.3.4 Where apertures are used in the floor of a walkway, inclined walkway, landing or platform situated above an area, where persons are expected, slots and interstices shall fulfil the following requirements:

— a ball with a diameter 20 mm or greater cannot pass through;

— a slot has a maximum width of 12 mm, where the length is 200 mm or greater.

5.3.5 Hand supports shall be designed and constructed so as not to have exposed sharp edges and corners or other hazardous projections. Edges shall have radii (minimum 2 mm) or be chamfered (minimum 2 × 2 mm).

Obstacles to retain the hands or feet, shall be provided at the ends of handholds and footholds.

5.3.6 Where access is foreseen with portable ladders, permanent means shall be provided to prevent the top of the ladder from sliding or slipping.

Portable ladders shall meet the requirements of this document for ladders.

5.4 Stairs and step ladders

Type 1 stairs shall be provided with a handrail and an intermediate guard-rail on both sides. Where the distance between a stair and a continuous surface is less than 200 mm, it is permissible to omit intermediate guard-rails. For details of handrails and side protections, see 5.10.

The climbing height of a single flight shall not exceed 6 m for Type 1 step ladders.

Where Type 2 stairs are not fitted with a handrail, provision (e.g. an inclined lifeline in accordance with EN 795:2012) shall be made for the use of personal fall protection equipment against falls from a height. For personal fall protection equipment, see EN 363:2018.

Step ladders shall be provided with handrails or handholds on both sides.

Steps shall be regularly spaced within a single section of stairs or step ladders. The distance from the floor to the first step should be the same as the rise of the stair or ladder; but may vary to accommodate movement between the floor and the step or for the fitting of standardized components.

Stairs and step ladders shall have the dimensions in accordance with Figure 3, Table 2 and Table 3.

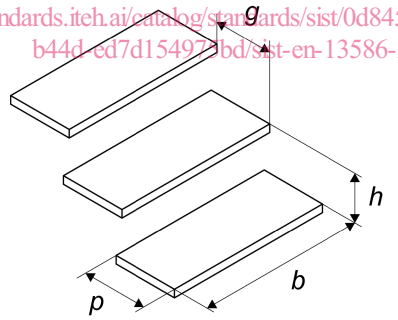


Figure 3 — Dimensional parameters for stairs and step ladders