



SLOVENSKI STANDARD
SIST EN 13557:2024

01-julij-2024

Žerjavi - Krmilja in krmilna mesta

Cranes - Controls and control stations

Krane - Stellteile und Steuerstände

Appareils de levage à charge suspendue - Commandes et postes de commande

Ta slovenski standard je istoveten z: EN 13557:2024

ICS:

53.020.20 Dvigala Cranes

SIST EN 13557:2024

en,fr,de

EUROPEAN STANDARD

EN 13557

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2024

ICS 53.020.20

Supersedes EN 13557:2003+A2:2008

English Version

Cranes - Control devices and control stations

Appareils de levage à charge suspendue - Commandes
et postes de commande

Krane - Stellteile und Steuerstände

This European Standard was approved by CEN on 12 February 2024.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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.

CEN members are the national standards bodies of 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 United Kingdom.

(<https://standards.iteh.ai>)
Document Preview

[SIST EN 13557:2024](https://standards.iteh.ai)

<https://standards.iteh.ai/catalog/standards/sist/43d0e6b5-d0a5-43fd-8411-e02f502fa9a3/sist-en-13557-2024>



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

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

Contents	Page
European foreword	3
Introduction	4
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions.....	6
4 Requirements.....	7
4.1 Control devices	7
4.1.1 General.....	7
4.1.2 Control levers and joysticks.....	7
4.1.3 Push buttons.....	7
4.1.4 Pedals.....	7
4.1.5 Touch screen controls.....	8
4.2 Control stations	8
4.2.1 General.....	8
4.2.2 Cable connected control stations.....	8
4.2.3 Cableless control stations.....	9
4.3 Cabins.....	9
4.3.1 General.....	9
4.3.2 Windows.....	9
4.3.3 Access.....	10
4.3.4 Emergency exit	10
4.3.5 Roof.....	10
4.3.6 Crane operator's seat	10
4.3.7 Cabin climate.....	10
4.3.8 Fire protection	11
4.3.9 Fire extinguisher.....	11
4.4 Other operating positions.....	11
4.4.1 General.....	11
4.4.2 Fixed operating positions on the crane	11
4.4.3 Moveable operating positions.....	11
5 Verification of the safety requirements and/or measures.....	12
6 Information for use	13
Annex A (informative) List of significant hazards.....	14
Annex B (informative) Selection of suitable set of crane standards for a given application	16
Annex ZA (informative) Relationship between this European Standard and the essential requirements of Directive 2006/42/EC aimed to be covered	18
Bibliography	21

European foreword

This document (EN 13557:2024) has been prepared by Technical Committee CEN/TC 147 “Cranes - Safety”, the secretariat of which is held by DIN.

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 September 2024, and conflicting national standards shall be withdrawn at the latest by September 2024.

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 13557:2003+A2:2008.

This document has the following significant technical changes with respect to EN 13557:2003+A2:2008:

- updating of normative references;
- revision of List of significant hazards and move to Annex A;
- revision and update of Table 2 (now Table 1) and Table A.1;
- revision of Annex ZA;
- reorganization of the clauses.

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, which is an integral part of this document.

[SIST EN 13557:2024](https://standards.cen.eu)

<https://standards.cen.eu/standards/02fa9a3/sist-en-13557-2024>

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, Türkiye and the United Kingdom.

EN 13557:2024 (E)

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);
- 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 in 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.

SIST EN 13557:2024

<https://standards.iteh.ai/catalog/standards/sist/43d0e6b5-d0a5-43fd-8411-e02f502fa9a3/sist-en-13557-2024>

1 Scope

This document specifies health and safety design requirements for control devices and control stations and their operating positions for all types of cranes.

Specific requirements for particular types of cranes are given in the appropriate European Standard for the particular crane type (see Annex B).

This document does not deal with noise hazards because these are dealt with in safety standards for specific types of cranes. It also does not address the design of the cabin with regard to its sound insulation properties.

This document covers specific hazards which could occur during the use of control devices and control stations. It does not cover hazards which could occur during transport, construction, modification, de-commissioning, or disposal. The hazards covered by this document are identified in Annex A.

This document is not applicable to 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 ISO 12100:2010, *Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)*

EN 13586:2020, *Cranes - Access*

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

EN 14502-2:2005+A1:2008, *Cranes - Equipment for the lifting of persons - Part 2: Elevating control stations*

EN 62745:2017, *Safety of machinery - Requirements for cableless control systems of machinery*

EN 60068-2-27:2009, *Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock*

EN 60068-2-31:2008, *Environmental testing - Part 2-31: Tests - Test Ec: Rough handling shocks, primarily for equipment-type specimens*

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

ISO 3795:1989, *Road vehicles, and tractors and machinery for agriculture and forestry — Determination of burning behaviour of interior materials*

ISO 11112:1995,¹ *Earth-moving machinery - Operator's seat - Dimensions and requirements*

ISO 7296-1:1991², *Cranes — Graphic symbols — Part 1: General*

¹ As impacted by ISO 11112:1995/AMD1:2001.

² As impacted by ISO 7296-1:1991/AMD1:1996.

EN 13557:2024 (E)

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 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

cabin

enclosed operating position

3.2

cableless control

means by which the crane operator's commands are transmitted without any physical connection for at least a part of the distance between the control station and the crane

3.3

control station

assembly of one or more control devices fixed on the same panel or located in the same enclosure

[SOURCE: IEV 441-12-08, modified]

3.4

control device

physical unit that can combine – in a module/subassembly or device – a mode selector, an adjuster for manual control of the actuating drive and, if necessary, a reference-variable adjuster for the controller

[SOURCE: IEV 351-56-07]

3.5

hatch

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

[SOURCE: EN 13586:2020]

3.7

operating position

place where the operators carry out their tasks

Note 1 to entry: *Cabin* (3.1) is also one type of an operating position.

3.8

console

fixed or moveable arrangement of control devices

[SOURCE: ISO 7752-1:2010, modified]

4 Requirements

4.1 Control devices

4.1.1 General

Control devices shall conform to the safety requirements and/or protective measures of this clause. In addition, control devices 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.

In order to prevent unintended movement of a crane motion, the motion shall only be able to be initiated from the neutral position of the control device.

NOTE The typical arrangement of the control devices for a particular crane type is as specified in the appropriate European Standards for particular crane types.

Protection against electric shock for direct or indirect contact shall be as specified in Clause 5 of EN 60204-32:2008.

The temperature of control devices, as generated by the crane's operation, shall not exceed 43 °C.

4.1.2 Control levers and joysticks

The direction of movement of control levers and joysticks shall where possible be consistent with crane motion. Symbols in accordance with ISO 7296-1:1991 shall be fixed in such positions that there is a clear and unambiguous relationship between the movement of the control lever or joystick in the control station and the corresponding direction of motion. Control levers and joysticks for crane movements, when released, shall automatically return to the neutral position.

The force required to actuate the control levers and joysticks shall not exceed the following values:

- forwards or backwards: 20 N;
- sideways, to the left or to the right: 20 N.

A higher actuating force may be accepted for levers and joysticks where specified in a particular crane type standard.

Control levers or joysticks shall have an actuating force that prevents unintended movement of the machinery caused by friction, acceleration and/or vibration.

4.1.3 Push buttons

For push buttons actuated by finger or thumb, the force shall not exceed a value of 10 N.

For push buttons actuated by the foot the force shall not exceed a value of 100 N.

Push buttons for crane movements, when released, shall automatically return to the off position.

The emergency stop actuator installed on the control station shall be in accordance with the specification for emergency stop actuators given in EN ISO 13850:2015.

4.1.4 Pedals

The use of pedals shall only be used when operating the crane in a seated position.

For the pedals, the actuating force shall not exceed the following values:

- pedals actuated by a movement of the ankle: 50 N;
- pedals actuated by a movement of the leg: 100 N.

EN 13557:2024 (E)**4.1.5 Touch screen controls**

Where touch screens are used, protection against environmental influence e.g. rain, snow, waist, dust shall be provided. Touch screens shall not be used to control crane movements.

Starting of sequential functions by touch screens shall be differentiated from alarms or other display signals.

Visibility of the display and the touch points shall be provided to ensure correct control commands.

4.2 Control stations**4.2.1 General**

Control stations shall conform to the safety requirements and/or protective measures of this clause. In addition, control devices 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 logic of the control device arrangement shall be the same at each control station associated with operating the crane.

Where a crane has more than one control station, measures shall be taken to ensure that only one control station is operational at a given time. However, an emergency stop command from any control station shall be effective at all times for safety reasons.

Where vibration damping elements are also used as mountings for a control station, additional fixing(s) shall be provided to prevent detachment of the control station in the event of failure of the damping elements.

Fixings used for mounting the control station shall be of a type, which prevent unintentional loosening. Fixings, excluding vibration damping elements, shall be made from fire retardant materials.

4.2.2 Cable connected control stations

For situations where the operator has to follow the crane, its load or control station on foot, the speed of the travel motions shall not exceed 1,0 m/s.

Pendant control stations shall be so positioned that the crane operator is able to position himself outside the danger zone.

The distance from the underside of a pendant control stations to the floor shall be at least 0,9 m and the top of the pendant control station a maximum of 1,7 m to the floor.

With regard to pulling forces the electrical flexible cables and fittings used in cable connected control devices shall conform to the requirements of 13.4.2 and 13.4.3 of EN 60204-32:2008. Similar precautions shall be taken for other types of control system with physical connections.

Where the position or orientation of a console is variable with regard to the movement of the crane or a part of the crane there shall be symbols in accordance with ISO 7296-1:1991 placed so that there is a clear relationship between the actuating movement of the control lever and the direction of the crane movements.

Consoles and control devices shall be designed and protected so that the desired effect occurs only by an intentional operation.

This may be achieved by e.g.:

- recessing the actuator (lever, push buttons);
- mechanical interlock of the neutral position of the control lever;
- use of a set of actuators requiring sequential or simultaneous actions;