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Cranes - Light crane systems

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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ICS 53.020.20

English Version

Cranes - Light crane systems

Appareils de levage à charge suspendue - Systèmes de
grue légère

Krane - Leichtkransysteme

This European Standard was approved by CEN on 14 November 2016.

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CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN 16851:2017) 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of an identical text or by endorsement, at the latest by July 2017, and conflicting national standards shall be withdrawn at the latest by July 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] 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.

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

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

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

This European Standard has been prepared to provide one means for equipment of cranes to conform to the essential health and safety requirements of the Machinery Directive.

The machinery concerned and the extent to which hazards, hazardous situations and hazardous events are covered are indicated in the scope of this document (see Clause 1).

When provisions of this type C standard are different from those which are stated in type A or B standards, 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 European Standard applies to:

- light crane systems, either suspended or free-standing systems;
- pillar jib cranes;
- wall-mounted jib crane.

NOTE 1 For illustration of crane types, see Annex B.

NOTE 2 The rated capacity of the light crane systems is generally below 10 t, but the standard is still applicable, if the rated capacity is higher.

This European Standard is applicable to cranes and crane systems, whose structures are made of steel or aluminium, excluding aluminium structures containing welded joints.

This European Standard is not applicable to cranes covered by another product specific crane standard, e.g. EN 15011 or EN 14985.

This European Standard gives requirements for all significant hazards, hazardous situations and events relevant to cranes, when used as intended and under conditions foreseen by the manufacturer (see Clause 4).

The specific hazards due to potentially explosive atmospheres, ionizing radiation, operation in electromagnetic fields beyond the range of EN 61000-6-2 and operation in pharmacy or food industry are not covered by this European Standard.

This European Standard does not include requirements for the lifting of persons.

This European Standard is applicable to cranes, which are manufactured after the date of approval by CEN of this European Standard.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 349, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body*

EN 515, *Aluminium and aluminium alloys - Wrought products - Temper designations*

EN 614-1, *Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles*

EN 755-9, *Aluminium and aluminium alloys - Extruded rod/bar, tube and profiles - Part 9: Profiles, tolerances on dimensions and form*

EN 795, *Personal fall protection equipment - Anchor devices*

EN 894-1, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 1: General principles for human interactions with displays and control actuators*

EN 894-2, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 2: Displays*

EN 12077-2, *Cranes safety — Requirements for health and safety — Part 2: Limiting and indicating devices*

EN 12644-1, *Cranes — Information for use and testing — Part 1: Instructions*

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

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

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

EN 13001-3-2, *Cranes - General design - Part 3-2: Limit states and proof of competence of wire ropes in reeving systems*

EN 13001-3-3, *Cranes - General design - Part 3-3: Limit states and proof of competence of wheel/rail contacts*

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

EN 13135, *Cranes - Safety - Design - Requirements for equipment*

EN 13157, *Cranes — Safety — Hand powered cranes*

EN 13557:2003+A2:2008, *Cranes - Controls and control stations*

EN 13586, *Cranes — Access*

EN 14238, *Cranes — Manually controlled load manipulating devices*

EN 14492-2, *Cranes — Power driven winches and hoists — Part 2: Power driven hoists*

EN 15011, *Cranes — Bridge and gantry cranes*

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

EN ISO 3744:2010, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering methods for an essentially free field over a reflecting plane (ISO 3744:2010)*

EN ISO 4871, *Acoustics - Declaration and verification of noise emission values of machinery and equipment (ISO 4871)*

EN ISO 11201, *Acoustics - Noise emitted by machinery and equipment - Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections (ISO 11201)*

EN ISO 11202:2010, *Acoustics - Noise emitted by machinery and equipment - Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections (ISO 11202:2010)*

EN ISO 11203:2009, *Acoustics - Noise emitted by machinery and equipment - Determination of emission sound pressure levels at a work station and at other specified positions from the sound power level (ISO 11203:1995)*

EN ISO 11688-1, *Acoustics - Recommended practice for the design of low-noise machinery and equipment - Part 1: Planning (ISO/TR 11688-1)*

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

EN ISO 13849-1, *Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design (ISO 13849-1)*

EN ISO 13857, *Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857)*

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

ISO 3864 (all parts), *Graphical symbols — Safety colours and safety signs*

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

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4306-1, EN ISO 3744 and the following apply.

3.1

light crane system

assembly of lifting devices, bridges, trolleys and tracks with their suspensions for lifting operations

3.2

bridge

beam carrying lifting device(s) and supported on trolleys running on tracks

Note 1 to entry: Wording of the definition differs from that given in ISO 4306-1.

3.3

track

stationary beam on which a bridge or lifting device(s) are running

Note 1 to entry: Characteristic for tracks in light crane systems is that a track can be removed from the supporting building structures without influence on strength of the supporting structures.

3.4

suspension

necessary clamps, hanger rods and other fittings from which a track is suspended from a building or other supporting structure

3.5

monorail

track on which lifting devices or trolleys are running

Note 1 to entry: Monorail together with lifting device is a particular type of a light crane system.