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Tower cranes - Anti-collision systems - Safety requirements

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

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English Version

Tower cranes - Anti-collision systems - Safety requirements

Grues à tour - Systèmes anti-collision - Prescriptions de sécurité

Turmdrehkrane - Antikollisionssysteme - Sicherheitstechnische Anforderungen

This European Standard was approved by CEN on 21 September 2020.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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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 17076:2020) 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of an identical text or by endorsement, at the latest by June 2021 and conflicting national standards shall be withdrawn at the latest by June 2021.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 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.

To select a suitable set of standards for a given application, see Annex A.

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, Turkey and the United Kingdom.

Introduction

This document has been prepared to be a harmonized standard to provide one means for the mechanical design and theoretical verification of cranes to conform with the essential health and safety requirements of the Machinery Directive 2006/42/EC modified.

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

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this standard.

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 document specifies the requirements of anti-collision devices and systems installed on tower cranes for construction work (as defined in EN 14439:2006+A2:2009) to avoid the risks of collision between several cranes in service, to avoid the risks of collision between a crane in use and fixed obstacles, and to avoid travelling over prohibited zones.

It also specifies the requirements for working range limiting devices.

Anti-collision devices and systems and working range limiting devices according to this document are safety components.

This document defines the safety characteristics and requirements of anti-collision devices and systems intended for installation on self-erecting tower cranes and tower cranes erected from parts.

In particular:

— performance level;

— information to be provided by the sensors installed on the crane;

— operation, particularly in the event of failure, override and free jib slewing states of a crane;

— type of communication between devices;

— information for the crane operator and outside indicator.

This document deals with all significant hazards, hazardous situations and events relevant to anti-collision devices and systems installed on tower cranes, when used as intended and under conditions foreseen by the manufacturer. This document specifies the appropriate technical measures to eliminate or reduce risks arising from the significant hazards (see Clause 4).

This document is not applicable to anti-collision devices and systems 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 13557:2003+A2:2008, *Cranes — Controls and control stations*

EN 14439:2006+A2:2009, *Cranes — Safety — Tower cranes*

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

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

EN ISO 13849-1:2015, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2015)*