BS EN 13001-3-2:2014

BSI Standards Publication

Cranes — General design

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

bsi.

...making excellence a habit.™

This British Standard is the UK implementation of EN 13001-3-2:2014. It supersedes DD CEN/TS 13001-3-2:2004, which is withdrawn.

This standard, together with BS EN 13001-1:2004+A1:2009, BS EN 13001-2:2014, BS EN 13001-3-1:2012+A1:2013, BS EN 13001-3-3:2014, BS EN 13001-3-4 and DD CEN/TS 13001-3-5:2010, supersedes BS 2573-1:1983 and BS 2573-2:1980, which will be withdrawn on publication of all parts of the BS EN 13001 series.

Users' attention is drawn to the fact that neither BS 2573-1:1983 nor BS 2573-2:1980 should be used in conjunction with the EN 13001 series as they are not complementary. The BS 2573 series will remain current until all parts of the BS EN 13001 series cited above have been published to ensure that a coherent package of standards remains available in the UK during the transition to European standards.

The UK participation in its preparation was entrusted by Technical Committee MHE/3, Cranes and derricks, to Subcommittee MHE/3/1, Crane design.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2014

ISBN 978 0 580 79309 7
ICS 21.220.20; 53.020.20

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 November 2014.

Amendments/corrigenda issued since publication

Date	Text affected

EUROPÄISCHE NORM

August 2014

ICS 21.220.20; 53.020.20

Supersedes CEN/TS 13001-3-2:2008

English Version

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

Appareils de levage à charge suspendue - Conception générale - Partie 3-2 : Etats limites et vérification d'aptitude des câbles en acier mouflés

Krane - Konstruktion allgemein - Teil 3-2: Grenzzustände und Sicherheitsnachweis von Drahtseilen in Seiltrieben

This European Standard was approved by CEN on 14 June 2014.

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

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

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

Ref. No. EN 13001-3-2:2014 E

Contents

Page

Foreword

This document (EN 13001-3-2:2014) has been prepared by Technical Committee CEN/TC 147 “Crane — 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 February 2015 and conflicting national standards shall be withdrawn at the latest by February 2015.

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 supersedes CEN/TS 13001-3-2:2008.

CEN/TC 147/WG 2 has reviewed CEN/TS 13001-3-2:2008 to adapt the standard to the technical progress.

The major changes in this document are in the following clauses:

— 6.3 and 6.5;

— there are new issues in Clause 7.

The provisions of this standard shall not be mandatory to cranes manufactured within the first 12 months following the date of availability (DAV) of the standard.

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.

This European Standard is one Part of EN 13001, *Cranes — General design*. 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 3-3: Limit states and proof of competence of wheel/rail contacts*

— *Part 3-4: Limit states and proof of competence of machinery*

— *Part 3-5: Limit states and proof of competence of forged hooks*

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This European Standard has been prepared to be a harmonized standard to provide one means for the mechanical design and theoretical verification of cranes to conform to the essential health and safety requirements of the Machinery Directive, as amended. This standard 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 European Standard 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.

1 Scope

This European Standard is to be used together with EN 13001-1 and EN 13001-2 and as such they specify general conditions, requirements and methods to prevent mechanical hazards of wire ropes of cranes by design and theoretical verification.

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

The following is a list of significant hazardous situations and hazardous events that could result in risks to persons during intended use and reasonably foreseeable misuse. Clauses 5 to 6 of this standard are necessary to reduce or eliminate risks associated with the following hazard:

- exceeding the limits of strength (yield, ultimate, fatigue).

This European Standard is not applicable to cranes which are manufactured before the date of its publication as EN and serves as reference base for the European Standards for particular crane types (see Annex C).

EN 13001-3-2 deals only with the limit state method in accordance with EN 13001-1.

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 1990:2002, *Eurocode — Basis of structural design*

EN 12385-2, *Steel wire ropes — Safety — Part 2: Definitions, designation and classification*

EN 12385-4, *Steel wire ropes — Safety — Part 4: Stranded ropes for general lifting applications*

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

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

EN 13411-1, *Terminations for steel wire ropes — Safety — Part 1: Thimbles for steel wire rope slings*

EN 13411-2, *Terminations for steel wire ropes — Safety — Part 2: Splicing of eyes for wire rope slings*

EN 13411-3, *Terminations for steel wire ropes — Safety — Part 3: Ferrules and ferrule-securing*

EN 13411-4, *Terminations for steel wire ropes — Safety — Part 4: Metal and resin socketing*

EN 13411-6, *Terminations for steel wire ropes — Safety — Part 6: Asymmetric wedge socket*

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

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

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