

## საქართველოს სტანდარტი

---

ამწვერანი - მსუბუქი ამწვერანის სისტემები

საქართველოს სტანდარტებისა და მეტროლოგიის  
ეროვნული სააგენტო  
თბილისი

საინფორმაციო მონაცემები

1 დამტკიცებულია და შემოღებულია სამოქმედოდ საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს 2018 წლის 08 ივნისის № 67 და 2018 წლის 7 მარტის № 14 განკარგულებებით

2 მიღებულია თავფურცლის თარგმნის მეთოდით სტანდარტიზაციის ევროპული კომიტეტის სტანდარტი ენ 16851:2017 „ამწეკრანი - მსუბუქი ამწეკრანის სისტემები“

3 პირველად

4 რეგისტრირებულია საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს რეესტრში: 2018 წლის 08 ივნისი №268-1.3-013750

აკრძალულია ამ სტანდარტის გადაცემა მესამე პირებისათვის ან/და მისი სხვა ფორმით გავრცელება

EUROPEAN STANDARD

EN 16851

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2017

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.

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, Serbia, 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**

<b>Contents</b>	<b>Page</b>
European foreword.....	5
Introduction .....	6
<b>1 Scope .....</b>	<b>7</b>
<b>2 Normative references .....</b>	<b>7</b>
<b>3 Terms and definitions .....</b>	<b>9</b>
<b>4 List of significant hazards .....</b>	<b>11</b>
<b>5 Safety requirements and/or protective measures .....</b>	<b>16</b>
5.1 General.....	16
5.2 Aluminium structures .....	17
5.2.1 General.....	17
5.2.2 Products and materials.....	17
5.2.3 Proof of static strength.....	18
5.2.4 Proof of fatigue strength.....	18
5.2.5 Proof of elastic stability .....	19
5.3 Actions on supporting structures.....	19
5.4 General components .....	19
5.4.1 Joints in crane tracks, crane bridges and monorails.....	19
5.4.2 Suspensions.....	20
5.4.3 Bridge skewing.....	20
5.4.4 Backup devices for trolleys and suspensions .....	20
5.4.5 Turntables and switches .....	20
5.4.6 Interlock .....	21
5.4.7 Loading/unloading station .....	22
5.4.8 Telescopic and cantilevered crane systems.....	22
5.4.9 Trolleys .....	23
5.4.10 End stops and motion limiters .....	23
5.4.11 Power supply .....	24
5.5 Tandem operation of cranes/trolleys from a single control station.....	24
5.6 Use of multiple lifting devices.....	24
5.7 Man-machine interface .....	24
5.7.1 Control devices and control stations.....	24
5.7.2 Horizontal speeds .....	24
5.7.3 Guarding and access.....	25
5.7.4 Lighting.....	26
5.7.5 Reduction of noise by design .....	26
5.8 Equipment for warning.....	27
5.8.1 General.....	27
5.8.2 Warning markings .....	27
5.8.3 Cableless control warning light .....	27
5.8.4 Location of the visual display unit .....	27
5.9 Safety related functions of control systems.....	27
<b>6 Fitness for purpose testing.....</b>	<b>28</b>
6.1 Functional test.....	28
6.2 Static test.....	28

საინფორმაციო ნაწილი. სრული ტექსტის სახსრავად შეიძლება სტანდარტი.

6.3	Dynamic test.....	29
7	Information for use.....	29
7.1	General.....	29
7.2	Operator’s manual.....	29
7.3	User’s manual.....	30
7.3.1	General.....	30
7.3.2	Instructions for installation.....	30
7.3.3	Instructions for maintenance.....	32
7.4	Marking of rated capacities.....	33
	<b>Annex A (informative) Guidance for specifying the operating duty.....</b>	<b>34</b>
	<b>Annex B (normative) Actions on supporting structures and installation dimensions.....</b>	<b>35</b>
B.1	Loads and load combinations.....	35
B.2	Jib cranes.....	36
B.2.1	Pillar jib crane.....	36
B.2.2	Wall-mounted jib crane.....	37
B.3	Suspended light crane systems.....	38
B.4	Free-standing systems.....	39
	<b>Annex C (normative) Noise test code.....</b>	<b>40</b>
C.1	General.....	40
C.2	Description of machinery family.....	41
C.3	Determination of a conventional emission sound pressure level by calculation.....	41
C.3.1	Principle of the method.....	41
C.3.2	Calculation.....	41
C.4	Determination of emission sound pressure level at control stations and other specified positions and determination of sound power level by measurement.....	43
C.4.1	Measurement method and points.....	43
C.4.1.1	Measurement of sound pressure level at working positions.....	43
C.4.1.2	Determination of sound power level or sound pressure level at determined positions.....	44
C.4.2	Installation and mounting conditions.....	44
C.4.3	Operating conditions.....	45
C.4.3.1	General.....	45
C.4.3.2	Hoisting and traversing.....	45
C.4.3.3	Travelling.....	45
C.5	Uncertainties.....	46
C.6	Information to be recorded.....	46
C.7	Information to be reported.....	46
C.8	Declaration and verification of noise emission values.....	46
	<b>Annex D (informative) Selection of a suitable set of European Standards for cranes in a given application.....</b>	<b>48</b>

**Annex ZA (informative) Relationship between this European Standard and the essential requirements of Directive 2006/42/EC aimed to be covered ..... 50**

**Bibliography..... 51**

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.

## 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.

საინფორმაციო ნაწილი. სრული ტექსტის საწარმოო შეიქმნეთ სტანდარტი.