

This is a preview of "BS EN 12999:2020". [Click here to purchase the full version from the ANSI store.](#)



BSI Standards Publication

Cranes — Loader cranes

This is a preview of "BS EN 12999:2020". [Click here to purchase the full version from the ANSI store.](#)

National foreword

This British Standard is the UK implementation of EN 12999:2020. It supersedes BS EN 12999:2011+A2:2018, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MHE/3/5, Mobile cranes.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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

© The British Standards Institution 2020
Published by BSI Standards Limited 2020

ISBN 978 0 580 51464 7

ICS 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 31 October 2020.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

This is a preview of "BS EN 12999:2020". [Click here to purchase the full version from the ANSI store.](#)

EUROPÄISCHE NORM

October 2020

ICS 53.020.20

Supersedes EN 12999:2011+A2:2018

English Version

Cranes - Loader cranes

Appareils de levage à charge suspendue - Grues de
chargement

Krane - Ladekrane

This European Standard was approved by CEN on 10 August 2020.

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, Turkey and United Kingdom.



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

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

This is a preview of "BS EN 12999:2020". [Click here to purchase the full version from the ANSI store.](#)

Contents

Page

European foreword.....	4
Introduction	5
1 Scope.....	6
2 Normative references.....	6
3 Terms, definitions, illustration of parts and abbreviated terms	8
3.1 Terms and definitions	8
3.2 Illustration of parts	13
3.3 Abbreviated terms	15
4 List of significant hazards	15
5 Safety requirements and/or protective/risk reduction measures.....	18
5.1 General.....	18
5.2 Structural calculation	18
5.3 Stress analysis	24
5.4 Mechanical arrangements.....	25
5.5 Hydraulic system.....	27
5.6 Limiting and indicating devices	29
5.7 Controls.....	34
5.8 Control stations.....	35
5.9 Electrical systems.....	38
5.10 Installation	38
6 Verification of the safety requirements and/or protective/risk reduction measures.....	40
6.1 General.....	40
6.2 Testing and test procedures.....	44
6.3 Noise emission measurement.....	50
7 Information for use	50
7.1 General.....	50
7.2 Instructions.....	50
7.3 Marking.....	53
Annex A (informative) Examples of configurations and mountings.....	62
Annex B (informative) Stress history parameter s and stress history classes S	69
Annex C (informative) Explanatory notes	73
Annex D (informative) Examples of dangerous movements	75
Annex E (normative) Symbols for working and setting-up functions	77
Annex F (informative) Control system – Preferred vertical layout for controls operated from the ground.....	79
Annex G (informative) Control system – Horizontal layout order	81
Annex H (informative) Control levers for high seats and remote controls.....	84
Annex I (normative) Cabins fitted on vehicle mounted loader cranes up to a net lifting moment of 250 kNm.....	87
Annex J (informative) Examples of raised control stations	90

This is a preview of "BS EN 12999:2020". [Click here to purchase the full version from the ANSI store.](#)

Annex K (normative) Raised control stations – Measures regarding handrails and handholds, ladders and steps.....	93
Annex L (informative) Installation of a loader crane on a vehicle.....	96
Annex M (informative) Selection of a suitable set of crane standards for a given application ..	102
Annex ZA (informative) Relationship between this European Standard and the essential requirements of EU Directive 2006/42/EC aimed to be covered	104
Bibliography	107

This is a preview of "BS EN 12999:2020". [Click here to purchase the full version from the ANSI store.](#)

European foreword

This document (EN 12999:2020) 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 April 2021, and conflicting national standards shall be withdrawn at the latest by April 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 supersedes EN 12999:2011+A2:2018.

The two major changes are the following:

- replacing the reference to EN 954-1:1996 with a reference to EN ISO 13849-1:2015;
- improving the subclause on stability test.

This document has been prepared under a standardization request 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.

The new requirements concerning limiting and indicating devices that are introduced in 5.6.1 of this revision of the document are not mandatory to cranes manufactured the first 12 months after the Date of Availability of the revised document. Annex M provides a list of standards that are relevant to other types of cranes.

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.

This is a preview of "BS EN 12999:2020". [Click here to purchase the full version from the ANSI store.](#)

Introduction

This document is a harmonized standard to provide one means for loader cranes to conform to the essential health and safety requirements of the Machinery Directive 2006/42/EC.

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 at 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.

The machinery concerned and the extent to which hazards are covered are indicated in the scope of this document.

This is a preview of "BS EN 12999:2020". [Click here to purchase the full version from the ANSI store.](#)

1 Scope

This document specifies minimum requirements for design, calculation, examinations and tests of hydraulic powered loader cranes and their mountings on vehicles or static foundations.

This document applies to loader cranes designed to be installed on:

- road vehicles, including trailers, with load carrying capability;
- tractors (road or agricultural), where only a towed trailer has capability to carry goods;
- demountable bodies to be carried by any of the above;
- other types of carriers (e.g. separate loaders, crawlers, rail vehicles, non-seagoing vessels);
- static foundations.

This document also applies to loader cranes equipped with special tools or interchangeable equipment (e.g. grapple, clamshell bucket, pallet clamp, etc.), as specified in the operator's manual.

This document does not apply to loader cranes used on board sea going vessels or to articulated boom system cranes which are designed as total integral parts of special equipment such as forwarders.

The hazards covered by this document are identified in Clause 4.

This document does not cover hazards related to the lifting of persons.

NOTE The use of cranes for lifting of persons can be subject to specific national regulations.

This document is not applicable to loader cranes manufactured before the publication of this document. For loader cranes designed before the publication of this document, the provisions concerning stress calculations in the version of EN 12999 that was valid at the time of their design, are still applicable.

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.

NOTE In the event of conflicting statements between referenced documents and this document, the statements in this document apply.

EN 1677-2:2000+A1:2008, *Components for slings - Safety - Part 2: Forged steel lifting hooks with latch, Grade 8*

EN 12077-2:1998+A1:2008, *Cranes safety - Requirements for health and safety - Part 2: Limiting and indicating devices*

EN 14492-2:2019, *Cranes - Power driven winches and hoists - Part 2: Power driven hoists*

EN 12644-1:2001+A1:2008, *Cranes - Information for use and testing - Part 1: Instructions*

EN 12644-2:2000+A1:2008, *Cranes - Information for use and testing - Part 2: Marking*

EN 13001-1:2015, *Cranes - General design - Part 1: General principles and requirements*

EN 13001-2:2014, *Crane safety - General design - Part 2: Load actions*