



BSI Standards Publication

Industrial trucks — Safety requirements and verification

Part 1: Supplementary requirements for self-propelled industrial trucks, other than driverless trucks, variable-reach trucks and burden-carrier trucks

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National foreword

This British Standard is the UK implementation of EN 16307-1:2020. It supersedes BS EN 16307-1:2013+A1:2015, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MHE/7, Industrial trucks.

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

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This publication has been prepared under a mandate given to the European Standards Organizations by the European Commission and the European Free Trade Association. It is intended to support requirements of the EU legislation detailed in the European Foreword. A European Annex, usually Annex ZA or ZZ, describes how this publication relates to that EU legislation.

For the Great Britain market (England, Scotland and Wales), if UK Government has designated this publication for conformity with UKCA marking (or similar) legislation, it may contain an additional National Annex. Where such a National Annex exists, it shows the correlation between this publication and the relevant UK legislation. If there is no National Annex of this kind, the relevant Annex ZA or ZZ in the body of the European text will indicate the relationship to UK regulation applicable in Great Britain. References to EU legislation may need to be read in accordance with the UK designation and the applicable UK law. Further information on designated standards can be found at www.bsigroup.com/standardsandregulation.

For the Northern Ireland market, UK law will continue to implement relevant EU law subject to periodic confirmation. Therefore Annex ZA/ZZ in the European text, and references to EU legislation, are still valid for this market.

UK Government is responsible for legislation. For information on legislation and policies relating to that legislation, consult the relevant pages of www.gov.uk.

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

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Amendments/corrigenda issued since publication

Date	Text affected
30 September 2022	Correction to title text

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English Version

Industrial trucks - Safety requirements and verification - Part 1: Supplementary requirements for self-propelled industrial trucks, other than driverless trucks, variable- reach trucks and burden-carrier trucks

Chariots de manutention - Exigence de
sécurité et vérifications - Partie 1 : Exigences
supplémentaires pour les chariots autres que les
chariots sans conducteur, les chariots à portée
variable et les chariots porteurs de charge

Sicherheit von Flurförderzeugen -
Sicherheitsanforderungen und Verifizierung
- Teil 1: Zusätzliche Anforderungen für
motorkraftbetriebene Flurförderzeuge mit
Ausnahme von fahrerlosen Flurförderzeugen,
Staplern mit veränderlicher Reichweite und
Lasten- und Personentransportfahrzeugen

This European Standard was approved by CEN on 12 July 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.

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

Annex ZA (informative)

Relationship between this European Standard and the essential requirements of Directive 2006/42/EC aimed to be covered

This European Standard has been prepared under a Commission's standardization request "M/396 Mandate to CEN and CENELEC for Standardisation in the field of machinery" to provide one voluntary means of conforming to essential requirements of Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast).

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in [Table ZA.1](#) confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive and associated EFTA regulations.

Table ZA.1 — Correspondence between this European Standard and Annex I of Directive 2006/42/EC

The relevant Essential Requirements of Directive 2006/42/EC	Clause(s)/sub-clause(s) of this EN	Remarks/Notes
1.1.2 Principles of safety integration	Clauses 4, 5, 6	
1.1.3 Materials and products	4.1, 4.2, Clause 5	
1.1.4 Lighting		not covered
1.1.5 Design of the machinery to facilitate its handling	4.1, 4.11, 4.12, 6.1.1, 6.1.3	
1.1.6 Ergonomics	4.1, 4.8, 4.12, 4.16, Clause 5, 6.1.1	
1.1.7 Operating positions		not covered
1.1.8 Seating	4.1, 4.8, Clause 5	
1.2.1 Safety and reliability of control systems	4.1, 4.2, 4.4, 4.5, Clause 5	
1.2.2 Control devices	4.1, 4.2, Clause 5	
1.2.3 Starting	4.1, 4.2, 4.5, Clause 5	
1.2.4 Stopping	4.1, 4.2, 4.4, 4.5, Clause 5	
1.2.5 Selection of control or operating modes	4.1, 4.5, Clause 5	
1.2.6 Failure of the power supply	4.1, 4.2, Clause 5	
1.3.1 Risk of loss of stability	4.1, 4.11	
1.3.2 Risk of break up during operation	4.1, 4.6, 4.7	
1.3.3 Risks due to falling or ejected objects	4.1, 4.9.2, Clause 5	
1.3.4 Risks due to surfaces, edges, or angles		not covered
1.3.5 Risks related to combined machinery		not covered
1.3.6 Risks related to variations in operating conditions	4.1, 6.1.1	
1.3.7 Risks related to moving parts	4.1, 4.9.1, 4.9.2, Clause 5	

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1.3.8 Choice of protection against risks arising from moving parts	4.1 , 4.9.1 , 4.9.2 , Clause 5	
1.3.9 Risk of uncontrolled movements	4.1 , 4.7	
1.4.1 General requirements	4.1 , 4.9.2 , Clause 5	
1.4.2.1 Fixed guards	4.1 , 4.9.1 , Clause 5	
1.4.2.2 Interlocking movable guards		not covered
1.4.2.3 Adjustable guards restricting access		not covered
1.4.3 Special requirements for protective devices		not covered
1.5.1 Electricity supply	4.1 , 4.2 , Clause 5	
1.5.2 Static electricity		not covered
1.5.3 Energy supply other than electricity		not covered
1.5.4 Errors of fitting		not covered
1.5.5 Extreme temperatures		not covered
1.5.6 Fire	4.1 , 4.2 , Clause 5	
1.5.7 Explosion		not covered
1.5.8 Noise	4.1 , 4.13 , Clause 5	
1.5.9 Vibrations	4.1 , 4.14 , Clause 5	
1.5.10 Radiation	4.1 , 4.15.1 , Clause 5	
1.5.11 External radiation	4.1 , 4.15.2 , Clause 5	
1.5.12 Laser radiation		not covered
1.5.13 Emission of hazardous materials and substances		not covered
1.5.14 Risk of being trapped in a machine		not covered
1.5.15 Risk of slipping, tripping or falling		not covered
1.5.16 Lighting		not covered
1.6.1 Machinery maintenance		not covered
1.6.2 Access to operating positions and servicing points		not covered
1.6.3 Isolation of energy sources	4.1 , 4.2 , Clause 5	
1.6.4 Operator intervention		not covered
1.6.5 Cleaning of internal parts		not covered
1.7.1 Information and warning on the machinery		not covered
1.7.2 Warning of residual risks		not covered
1.7.3 Marking of machinery	4.1 , 6.2.1	
1.7.4.1 General principles for the drafting of instructions		not covered
1.7.4.2 Contents of the instructions	4.1 , 6.1.1	
1.7.4.3 Sales literature		not covered
3.2.1 Driving position	4.1 , 4.12 , Clause 5	
3.2.2 Seating	4.1 , 4.16 , Clause 5	
3.2.3 Seating		not covered
3.3 Control systems	4.1 , 4.2 , 4.5 , Clause 5	

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3.3.1 Control devices	4.1, 4.2, 4.5, Clause 5	
3.3.2 Starting/moving	4.1, 4.2, 4.3, 4.16, Clause 5	
3.3.3 Travelling function	4.1, 4.2, 4.3, 4.4, Clause 5	
3.3.4 Movement of pedestrian-controlled machinery	4.1, 4.3, 4.5, Clause 5	
3.3.5 Control circuit failure	4.1, 4.2, Clause 5	
3.4.1 Uncontrolled movements	4.1, 4.11	
3.4.2 Moving transmission parts		not covered
3.4.4 Falling objects		not covered
3.4.5 Means of access		not covered
3.4.6 Towing devices		not covered
3.4.7 Transmission of power between self propelled machinery (or tractor) and recipient machinery		not covered
3.5.1 Batteries	4.1, 4.2, Clause 5	
3.5.2 Fire		not covered
3.5.3 Emission of hazardous substances		not covered
3.6.1 Signs, signals and warnings		not covered
3.6.2 Marking		not covered
3.6.3.1 Vibrations	4.1, 4.14, Clause 5, 6.1.1	
3.6.3.2 Multiple uses	6.1.1	
4.1.2.1 Risk due to lack of stability	4.1, 4.11, Clause 5	
4.1.2.2 Machinery running on guide rails and rail tracks		not covered
4.1.2.3 Mechanical strength		not covered
4.1.2.4 Pulleys, drums, wheels, ropes and chains	4.1, 4.6, Clause 5	
4.1.2.5 Lifting accessories and their components		not covered
4.1.2.6 Control of movements	4.1, 4.7, Clause 5	
4.1.2.7 Movement of loads during handling	4.1, 4.12, Clause 5	
4.1.2.8 Machinery serving fixed landings		not covered
4.1.3 Fitness for purpose		not covered
4.2.1 Control of movements		not covered
4.2.2 Loading control	4.1, 4.10, Clause 5, 6.1.1	

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4.2.3 Installations guided by ropes		not covered
4.3 Information and markings		not covered
4.4 Instructions		not covered
4.4.1 Lifting accessories	6.1.1	
4.4.2 Lifting machinery	6.1.1 , 6.1.2 , 6.1.3	

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product falling within the scope of this standard.

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European foreword

This document (EN 16307-1:2020) has been prepared by Technical Committee CEN/TC 150 "Industrial trucks - 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 2021, and conflicting national standards shall be withdrawn at the latest by February 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 16307-1:2013+A1:2015.

The main changes with respect to the first edition are as follows:

- a) requirements in respect to visibility (see [4.12](#)) have been changed;
- b) requirements for the operator restraint system (see [4.16](#)) have been added.

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 document is based on ISO/TS 3691-7, *Industrial trucks — Safety requirements and verification — Part 7: Regional requirements for countries within the European Community* and is limited to self-propelled industrial trucks.

EN 16307 consists of the following parts, under the general title *Industrial trucks — Safety requirements and verification*:

- *Part 1: Supplementary requirements for self-propelled industrial trucks, other than driverless trucks, variable-reach trucks and burden-carrier trucks*
- *Part 2: Supplementary requirements for self-propelled variable-reach trucks*
- *Part 3: Supplementary requirements for trucks with elevating operator position and trucks specifically designed to travel with elevated loads (additional requirements to EN 16307-1)*
- *Part 5: Supplementary requirements for pedestrian-propelled trucks*
- *Part 6: Supplementary requirements for burden and personnel carriers*

This document is intended to be used with EN ISO 3691-1, *Industrial trucks — Safety requirements and verification — Part 1: Self-propelled industrial trucks, other than driverless trucks, variable-reach trucks and burden-carrier trucks*.

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 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).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

The machines 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 EN 16307 series of standards covers safety requirements and their verification for industrial trucks as defined in ISO 5053-1 that are not covered exhaustively by the EN ISO 3691 series.

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1 Scope

This document gives requirements for the types of industrial trucks specified in the scope of EN ISO 3691-1:2015 ¹⁾.

This document is intended to be used in conjunction with EN ISO 3691-1:2015. These requirements are supplementary to those stated in EN ISO 3691-1:2015.

This document deals with the following significant hazards, hazardous situations or hazardous events relevant, when it is used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer:

- electrical requirements;
- noise emissions;
- vibration;
- visibility;
- electromagnetic radiation.

This document defines supplementary requirements to EN ISO 3691-1:2015:

- travel speed;
- brakes;
- travel and braking controls - additional operation from alongside pedestrian-controlled and stand-on trucks;
- lift chains;
- mast tilt and carriage isolation;
- operator's seat;
- operator restraint system;
- protection against crushing, shearing and trapping;
- information for use (instruction handbook and marking).

[Annex A](#) (informative) contains the list of significant hazards covered by 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 1175-1:1998+A1:2010, *Safety of industrial trucks — Electrical requirements — Part 1: General requirements for battery powered trucks*

EN 1175-2:1998+A1:2010, *Safety of industrial trucks — Electrical requirements — Part 2: General requirements of internal combustion engine powered trucks*

EN 1175-3:1998+A1:2010, *Safety of industrial trucks — Electrical requirements — Part 3: Specific requirements for the electric power transmission systems of internal combustion engine powered trucks*

1) This document is impacted by the corrigendum EN ISO 3691-1:2015/AC:2016 and the amendment EN ISO 3691-1:2015/A1:2020.