



BSI Standards Publication

Industrial trucks – Safety requirements and verification

Part 1: Self-propelled industrial trucks, other than driverless trucks, variable-reach trucks and burden-carrier trucks

This is a preview of "BS EN ISO 3691-1:201...". [Click here to purchase the full version from the ANSI store.](#)

National foreword

This British Standard is the UK implementation of EN ISO 3691-1:2015+A1:2020, incorporating corrigendum June 2016. It is identical to ISO 3691-1:2011, incorporating amendment 1:2020 and corrigendum August 2013. It supersedes BS EN ISO 3691-1:2015, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to ISO text carry the number of the ISO amendment. For example, text altered by ISO amendment 1 is indicated by $\overline{A1}$ $\overleftarrow{A1}$.

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 secretary.

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

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Amendments/corrigenda issued since publication

Date	Text affected
31 July 2016	Implementation of CEN corrigendum June 2016: European foreword updated
30 June 2020	Implementation of ISO amendment 1:2020 with CEN endorsement A1:2020

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EUROPÄISCHE NORM

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English Version

**Industrial trucks - Safety requirements and verification - Part 1:
Self-propelled industrial trucks, other than driverless trucks,
variable-reach trucks and burden-carrier trucks (ISO 3691-
1:2011, including Cor 1:2013)**

Chariots de manutention - Exigences de sécurité et vérification - Partie 1: Chariots de manutention automoteurs, autres que les chariots sans conducteurs, les chariots à portée variable et les chariots transporteurs de charges (ISO 3691-1:2011, y compris Cor 1:2013)

Sicherheit von Flurförderzeugen - Sicherheitsanforderungen und Verifizierung - Teil 1: Motorkraftbetriebene Flurförderzeuge mit Ausnahme von fahrerlosen Flurförderzeugen, Staplern mit veränderlicher Reichweite und Lastentransportfahrzeugen (ISO 3691-1:2011, einschließlich Cor 1:2013)

This European Standard was approved by CEN on 1 June 2015.

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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EUROPÄISCHES KOMITEE FÜR NORMUNG

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

European foreword

The text of ISO 3691-1:2011 including Cor 1:2013 has been prepared by Technical Committee ISO/TC 110 "Industrial trucks" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 3691-1:2015 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 January 2016, and conflicting national standards shall be withdrawn at the latest by January 2016.

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.

For the purposes of global relevance, the requirements of all clauses referring to ISO/TS 3691-7 have been transferred and published as European Standard EN 16307-1, *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*.

This document supersedes EN ISO 3691-1:2012.

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 2006/42/EC.

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

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.

Endorsement notice

The text of ISO 3691-1:2011 including Cor 1:2013 has been approved by CEN as EN ISO 3691-1:2015 without any modification.

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European foreword to amendment A1

This document (EN ISO 3691-1:2015/A1:2020) has been prepared by Technical Committee ISO/TC 110 "Industrial trucks" in collaboration with Technical Committee CEN/TC 150 "Industrial Trucks - Safety" the secretariat of which is held by BSI.

This Amendment to the European Standard EN ISO 3691-1:2015 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2020, and conflicting national standards shall be withdrawn at the latest by November 2020.

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 the relationship with EU Directive(s) see informative Annex ZA, which is an integral part of this document.

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, 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.

Endorsement notice

The text of ISO 3691-1:2011/Amd 1:2020 has been approved by CEN as EN ISO 3691-1:2015/A1:2020 without any modification.

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(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
		<i>To cover all the relevant safety requirements for the products(s) in its scope, this standard (providing global requirements and references to regional requirements for a machine) has to be applied together with one of those standards as specified in the scope (providing European regional requirements for a machine).</i>
1.1.2. Principles of safety integration	4.1.1	
1.1.3. Materials and products	4.1.6, 4.5, 4.6.4	
1.1.4. Lighting	4.10.2	
1.1.5. Design of machinery to facilitate its handling	4.9.8, 4.11.5	
1.1.6. Ergonomics	4.7.1, 4.7.2, 4.7.9, 4.11.1, 6.2.4	
1.1.7. Operating positions	4.5.1, 4.11.1	
1.1.8. Seating		not covered

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The relevant Essential Requirements of Directive 2006/42/EC	Clause(s)/sub-clause(s) of this EN	Remarks/Notes
1.2.1. Safety and reliability of control systems	4.3.2, 4.3.3, 4.4.2.1, 4.4.2.2, 4.4.2.3, 4.4.2.4, 4.4.2.5, 4.4.2.6, 4.4.3, 4.4.4	
1.2.2. Control devices	4.4.1, 4.4.3, 4.4.4, 6.3.1.4	
1.2.3. Starting	4.2.1, 4.2.2, 4.4.1, 4.4.2.1, 4.4.2.2, 4.4.2.3, 4.4.2.4, 4.4.2.5, 4.4.2.6, 4.4.3, 4.4.4, 4.4.5	
1.2.4.1. Normal stop	4.3.2, 4.3.3, 4.4.2.1, 4.4.2.2, 4.4.2.3, 4.4.2.4	
1.2.4.2. Operational stop		not covered
1.2.5. Selection of control or operating modes	4.4.2.6	
1.2.6. Failure of the power supply	4.3.2, 4.4.3, 4.6.4	
1.3.1. Risk of loss of stability	4.8.2, 4.8.3	
1.3.2. Risk of break-up during operation	4.5, 4.6.2, 4.6.3.3, 4.6.4, 4.6.5, 5.2	
1.3.3. Risks due to falling or ejected objects	4.7.5, 4.9.1, 4.9.2	
1.3.4. Risks due to surfaces, edges or angles	4.1.5	
1.3.5. Risks related to combined machinery	6.3.1.2	
1.3.6. Risks related to variations in operating conditions	4.1.2, 4.1.3,	
1.3.7. Risks related to moving parts	4.5.3.1, 4.7.7.2, 4.7.7.3, 4.7.7.4	
1.3.8.1. Moving transmission parts	4.1.1, 4.7.5.2, 4.7.7.2, 4.7.7.3, 4.7.7.4	
1.3.8.2. Moving parts involved in the process	4.2.1, 4.7.7.2, 4.7.7.3, 4.7.7.4	
1.3.9. Risks of uncontrolled movements	4.2.2, 4.6.3.1, 4.6.3.2, 4.6.3.4	
1.4.1. General requirements		not covered

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The relevant Essential Requirements of Directive 2006/42/EC	Clause(s)/sub-clause(s) of this EN	Remarks/Notes
1.4.2.1. Fixed guards		not covered
1.4.2.2. Interlocking movable guards		not covered
1.4.2.3. Adjustable guards restricting access		not covered
1.5.1. Electricity supply	4.9.5	
1.5.2. Static electricity		not covered
1.5.3. Energy supply other than electricity	4.5	
1.5.4. Errors of fitting	4.1.6, 4.9.4, 6.2.5	
1.5.5. Extreme temperatures	4.5.1, 4.7.6	
1.5.6. Fire	4.5.1, 4.5.4, 4.11.1	
1.5.7. Explosion	4.5.4, 4.9.5.4	
1.5.8. Noise		not covered
1.5.9. Vibrations		not covered
1.5.10. Radiation		not covered
1.5.11. External radiation		not covered
1.5.12. Laser radiation		not covered
1.5.13. Emissions of hazardous materials and substances	4.5.1, 4.5.2, 4.9.5.5	
1.5.14. Risk of being trapped in a machine	4.11.1.6	
1.5.15. Risk of slipping, tripping or falling	4.7.2, 4.7.3	
1.6.1. Machinery maintenance	4.5.4.3, 4.9.5, 6.2.3, 6.2.5	
1.6.2. Access to operating positions and servicing points	4.5.3, 4.9.5, 6.2.5	

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The relevant Essential Requirements of Directive 2006/42/EC	Clause(s)/sub-clause(s) of this EN	Remarks/Notes
1.6.3. Isolation of energy sources	4.1.6, 4.5.4	
1.6.4. Operator intervention	4.4.2.6, 4.7.7.3	
1.7.1. Information and warnings on the machinery	6.3.3, 6.3.4	
1.7.1.1. Information and information devices	6.3.1.4	
1.7.1.2. Warning devices	4.9.3	
1.7.2. Warning of residual risks	6.3.3.4	
1.7.3. Marking of machinery	6.3.1.2, 6.3.1.3, 6.3.3	
1.7.4. Instructions	6.1, 6.3.4	
1.7.4.1. General principles for the drafting of instructions	6.1, 6.2.3, 6.2.4, 6.2.5	
1.7.4.2. Contents of the instructions	6.2.3, 6.2.4, 6.2.5,	
1.7.4.3. Sales literature		not covered
3.2.1. Driving position	4.7.3.5, 4.7.5, 4.7.7.4	
3.2.2. Seating	4.7.8	
3.2.3. Positions for other persons	4.4.1.2	
3.3. Control systems	4.2.1, 4.2.2, 4.4.2.6	
3.3.1. Control devices	4.2.2, 4.4.1, 4.4.2.2, 4.4.2.3, 4.4.2.4, 4.4.2.6	
3.3.2. Starting/moving	4.2.1, 4.2.2	
3.3.3. Travelling function	4.3.2, 4.3.3, 4.4.2.6	
3.3.4. Movement of pedestrian-controlled machinery	4.4.2.4, 4.7.5.2	
3.3.5. Control circuit failure	4.4.3.2	

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The relevant Essential Requirements of Directive 2006/42/EC	Clause(s)/sub-clause(s) of this EN	Remarks/Notes
3.4.1. Uncontrolled movements	4.8.2, 4.8.3, 5.2	
3.4.2. Moving transmission parts	4.5.3	
3.4.4. Falling objects	4.9.1, 4.9.2	
3.4.5. Means of access	4.7.2	
3.4.6. Towing devices	4.12, 6.3.1.3	
3.5.1. Batteries	4.9.5	
3.5.2. Fire		not covered
3.6.1. Signs, signals and warnings	4.9.3, 6.3.1.2, 6.3.1.4, 6.3.2, 6.3.3, 6.3.5	
3.6.2. Marking	6.3.1.2, 6.3.1.3, 6.3.1.4, 6.3.2, 6.3.3, 6.3.4, 6.3.5	
3.6.3.1. Vibrations		not covered
3.6.3.2. Multiple uses	6.3.1.2	
4.1.2.1. Risks due to lack of stability	4.8.2, 4.8.3	
4.1.2.3. Mechanical strength	5.2	
4.1.2.4. Pulleys, drums, wheels, ropes and chains	4.6.2	
4.1.2.6 a)	4.6.3.2, 4.6.3.3	
4.1.2.6 c)	4.6.2.2, 4.6.3.1, 4.6.3.2, 4.6.3.4	
4.1.2.6 e)	4.4.4.1	
4.1.2.7. Movements of loads during handling		not covered
4.1.3. Fitness for purpose	5.3	
4.2.1. Control of movements	4.2.2.4, 4.4.4.1	

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The relevant Essential Requirements of Directive 2006/42/EC	Clause(s)/sub-clause(s) of this EN	Remarks/Notes
4.3.3. Lifting machinery		not covered
4.4.1. Lifting accessories	6.3.1.2	
4.4.2. Lifting machinery	6.2.3, 6.2.4, 6.2.5	
6. SUPPLEMENTARY ESSENTIAL HEALTH AND SAFETY REQUIREMENTS FOR MACHINERY PRESENTING PARTICULAR HAZARDS DUE TO THE LIFTING OF PERSONS		not covered

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(s) falling within the scope of this standard.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 3691-1 was prepared by Technical Committee ISO/TC 110, *Industrial trucks*, Subcommittee SC 2, *Safety of powered industrial trucks*.

This first edition of ISO 3691-1, together with ISO 3691-2, ISO 3691-3, ISO 3691-4, ISO 3691-5, ISO 3691-6, ISO/TS 3691-7 and ISO/TS 3691-8, cancels and replaces ISO 3691:1980, of which it constitutes a technical revision. It also incorporates the Amendment ISO 3691:1980/Amd 1:1983.

ISO 3691 consists of the following parts, under the general title *Industrial trucks — Safety requirements and verification*:

- *Part 1: Self-propelled industrial trucks, other than driverless trucks, variable-reach trucks and burden-carrier trucks*
- *Part 2: Self-propelled variable-reach trucks*
- *Part 3: Additional requirements for trucks with elevating operator position and trucks specifically designed to travel with elevated loads*
- *Part 4: Driverless industrial trucks and their systems*
- *Part 5: Pedestrian-propelled trucks*
- *Part 6: Burden and personnel carriers*
- *Part 7: Regional requirements for countries within the European Community* [Technical Specification]
- *Part 8: Regional requirements for countries outside the European Community* [Technical Specification]