



SLOVENSKI STANDARD
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Vozila za talni transport - Varnostne zahteve in preverjanje - 2. del: Vozila z lastnim pogonom s spremenljivim dosegom (ISO 3691-2:2016)

Industrial trucks - Safety requirements and verification - Part 2: Self-propelled variable-reach trucks (ISO 3691-2:2016)

Flurförderzeuge - Sicherheitsanforderungen und Verifizierung - Teil 2:
Motorkraftbetriebene Flurförderzeuge mit veränderlicher Reichweite (ISO 3691-2:2016)

Chariots de manutention - Exigences de sécurité et vérification - Partie 2: Chariots
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53.060 Industrijski tovornjaki Industrial trucks

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EUROPEAN STANDARD

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Industrial trucks - Safety requirements and verification - Part 2: Self-propelled variable-reach trucks (ISO 3691- 2:2016)

Chariots de manutention - Exigences de sécurité et
vérification - Partie 2: Chariots automoteurs à portée
variable (ISO 3691-2:2016)

Flurförderzeuge - Sicherheitsanforderungen und
Verifizierung - Teil 2: Motorkraftbetriebene
Flurförderzeuge mit veränderlicher Reichweite (ISO
3691-2:2016)

This European Standard was approved by CEN on 21 November 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.

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.



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EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN ISO 3691-2:2016) has been prepared by Technical Committee ISO/TC 110 "Industrial trucks" in collaboration with Technical 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 August 2016, and conflicting national standards shall be withdrawn at the latest by August 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 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.

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 3691-2:2016 has been approved by CEN as EN ISO 3691-2:2016 without any modification.

Annex ZA
(informative)

**Relationship between this European Standard
and the Essential Requirements of EU Directive 2006/42/EC**

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Machinery Directive 2006/42/EC.

Once this standard is cited in the Official Journal of the European Union under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this standard, except Clause 6.2.7, 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.

WARNING: Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

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ISO
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**Industrial trucks — Safety
requirements and verification —
Part 2:
Self-propelled variable-reach trucks**

Chariots de manutention — Exigences de sécurité et vérification —

Partie 2: Chariots automoteurs à portée variable

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 110, *Industrial trucks*, Subcommittee SC 2, *Safety of powered industrial trucks*.

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, variable-reach 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]*

ISO 3691-2:2016(E)**Introduction****General**

This document is a type-C standard as stated in ISO 12100.

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 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 ISO 3691- series of standards covers safety requirements and their verification for industrial trucks as defined in ISO 5053-1.

Structure

An important step forward in the work on the ISO 3691- series of standards was the agreement to issue a new structure of International Standards for industrial trucks having on one side basic standards for all kinds of trucks (see Foreword) and on the other side independent standards to cover the respective specific functions of industrial trucks, e.g. visibility, noise, vibration, electrical requirements, etc.

Assessment of hazards

The product needs to be designed in such a way that it is fit for its purpose or function and can be adjusted and maintained without putting persons at risk when used under the conditions foreseen by the manufacturer.

In order to properly design a product and to cover all specific safety requirements, the manufacturer will have to identify the hazards that apply to his product and carry out a risk assessment. The manufacturer will then need to design and construct the product taking this assessment into account.

The aim of this procedure is to eliminate the risk of accidents throughout the foreseeable lifetime of the machinery, including the phases of assembling and dismantling where risks of accidents could also arise from foreseeable abnormal situations.

In selecting the most appropriate methods, the manufacturer will need to apply the following principles, in the order given here:

- a) eliminate or reduce risks as far as possible by design (inherently safe machinery design and construction);
- b) take the necessary protective measures in relation to risks that cannot be eliminated by design;
- c) inform users of any shortcoming of the protective measures adopted;
- d) indicate whether any particular training is required;
- e) specify any need to provide personal protection equipment;
- f) refer to the appropriate user's document for proper operating instructions.

Industrial trucks need to be designed to prevent foreseeable misuse wherever possible, if such would engender risk. In other cases, the instructions will need to draw the user's attention to ways shown by experience in which the machinery ought not to be used.

This part of ISO 3691 does not repeat all the technical rules which are state-of-the art and which are applicable to the material used to construct the industrial truck. Reference will also need to be made to ISO 12100.

Legislative situation/Vienna Agreement

From the very beginning, the task of the working group was to revise ISO 3691:1980 and establish worldwide basic standards to comply with the major legislative regulations in, for example, the EU, Japan, Australia and North America.

Every effort was made to develop a globally relevant International Standard. That goal was achieved with most of the issues. For several potential problem areas compromises were needed and will be needed in the future. Where divergent regional requirements remain, these are addressed by ISO/TS 3691-7 and ISO/TS 3691-8.

In order to ensure that the revised International Standard will be actively used in the ISO member countries, worldwide, procedures will be necessary to replace the existing national standards and technical regulations by the revised International Standard. In the European Community, ISO and the European Committee for Standardization (CEN) agreed on technical co-operation under the Vienna Agreement, with the aim of replacing European Standards (EN) by International Standards. Other countries are asked to make similar agreements to ensure that their national standards and technical regulations are replaced by this International Standard.

Only by these actions will there be the guarantee that products in accordance with International Standards can be shipped worldwide freely without any technical barriers.

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Industrial trucks — Safety requirements and verification —

Part 2: Self-propelled variable-reach trucks

1 Scope

This part of ISO 3691 gives safety requirements and the means for their verification for self-propelled industrial variable-reach trucks and variable-reach container handlers/reach stackers as defined in ISO 5053-1 (hereafter referred to as *trucks*), equipped with forks or integral load-handling devices for normal industrial duties (e.g. fork arms or means, such as spreaders, for handling containers).

It is not applicable to

- rough-terrain variable-reach trucks,
- rough-terrain variable-reach trucks for handling containers,
- machines designed primarily for earth-moving (e.g. loaders and dozers), even when their buckets and blades are replaced with forks,
- machines from which the load can swing freely in all directions.

For the purposes of this part of ISO 3691, fork arms and integrated attachments are considered to be a part of the truck, whereas attachments/equipment mounted on the load carrier or on the fork arms which are removable by the user are not. Nevertheless, requirements for such attachments are also given by the document.

Any regional requirements additional to the provisions of this part of ISO 3691 are addressed in ISO/TS 3691-7 and ISO/TS 3691-8.

This part of ISO 3691 deals with all significant hazards, hazardous situations or hazardous events, as listed in [Annex B](#), with the exception of the following, relevant to the applicable machines when used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer.

It does not establish requirements for hazards that can occur

- during construction,
- when using trucks on public roads,
- when operating in potentially explosive atmospheres, or
- when lifting persons.

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.

ISO 2328, *Fork-lift trucks — Hook-on type fork arms and fork arm carriages — Mounting dimensions*

ISO 2330, *Fork-lift trucks — Fork arms — Technical characteristics and testing*