



SLOVENSKI STANDARD
oSIST prEN ISO 3691-2:2008
01-oktober-2008

Vozila za talni transport - Varnostne zahteve in pregledi - 2. del: Samognana vozila s spremenljivim dosegom (ISO/DIS 3691-2:2008)

Industrial trucks - Safety requirements and verification - Part 2: Self-propelled variable-reach trucks (ISO/DIS 3691-2:2008)

Flurförderzeuge - Sicherheitsanforderungen und Verifizierung - Teil 2: Motorkraftbetriebene Stapler mit veränderlicher Reichweite (ISO/DIS 3691-2:2008)

Chariots de manutention - Exigences de sécurité et vérification - Partie 2: Chariots automoteurs a portée variable (ISO/DIS 3691-2:2008)

Ta slovenski standard je istoveten z: prEN ISO 3691-2

ICS:

53.060 Industrijski tovornjaki Industrial trucks

oSIST prEN ISO 3691-2:2008 **en,fr,de**

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN ISO 3691-2

June 2008

ICS 53.060

Will supersede EN 1459:1998, EN 1726-1:1998

English Version

Industrial trucks - Safety requirements and verification - Part 2: Self-propelled variable-reach trucks (ISO/DIS 3691-2:2008)

Chariots de manutention - Exigences de sécurité et
vérification - Partie 2: Chariots automoteurs à portée
variable (ISO/DIS 3691-2:2008)

Flurförderzeuge - Sicherheitsanforderungen und
Verifizierung - Teil 2: Motorkraftbetriebene Stapler mit
veränderlicher Reichweite (ISO/DIS 3691-2:2008)

This draft European Standard is submitted to CEN members for third parallel enquiry. It has been drawn up by the Technical Committee CEN/TC 150.

If this draft becomes a European Standard, 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.

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Foreword

This document (prEN ISO 3691-2:2008) has been prepared by Technical Committee ISO/TC 110 "Industrial trucks" in collaboration with by Technical Committee CEN/TC 150 "Industrial Trucks - Safety" the secretariat of which is held by BSI.

This document is currently submitted to the third parallel Enquiry.

This document will supersede EN 1459:1998, EN 1726-1:1998.

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 EC Directive(s).

Endorsement notice

The text of ISO/DIS 3691-2:2008 has been approved by CEN as a prEN ISO 3691-2:2008 without any modification.

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DRAFT INTERNATIONAL STANDARD ISO/DIS 3691-2.3

ISO/TC 110/SC 2

Secretariat: BSI

Voting begins on:
2008-06-26

Voting terminates on:
2008-08-26

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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

ICS 53.060

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To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

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ISO/DIS 3691-2.3

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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 3691-2 was prepared by Technical Committee ISO/TC 110, *Industrial trucks*, Subcommittee SC 2.

This edition cancels and replaces the second edition (ISO 3691:1980), which has been technically revised.

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 and variable reach trucks, and burden carriers*
- *Part 2: Self propelled industrial 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*

Introduction

0.1 General

This International Standard covers safety requirements and verification of industrial trucks as defined in Standard ISO 5053 - Terminology.

For the purpose of this Standard, industrial trucks are wheeled self propelled or manually driven vehicles, except those running on rails. They are either operator controlled or driverless and are designed to carry, tow, push, lift, stack or tier in racks.

0.2 Structure

An important step forward within the work for this standard 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.

0.3 Assessment of hazards

The product should 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 it is used under conditions foreseen by the manufacturer.

In order to properly design a product and to cover all specific safety requirements, the manufacturer should identify the hazards that apply to his product and should carry out a risk assessment. He then should design and construct it taking account of this assessment.

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 should apply the following principles in the order given:

- Eliminate or reduce risks as far as possible by design (inherently safe machinery design and construction);
- take the necessary protection measures in relation to risks that can not be eliminated by design;
- inform users of the residual risks due to any shortcoming of the protection measures adopted;
- indicate whether any particular training is required;
- specify any need to provide personal protection equipment and;
- refer to the appropriate users document for proper operating instructions.

The machinery should be designed to prevent abnormal use, wherever possible, if such would engender risk. In other cases the instructions should draw the user's attention to ways – which experience has shown might occur – in which the machinery should not be used.

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A list of significant hazards is given in clause 4 of each part of the standard. The list provides guidance on appropriate measures to protect against the risks involved.

This International Standard 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 should be made to ISO 12100-2.

0.4 Legislative situation/Vienna Agreement

From the very beginning, the task of the working group was to revise the standard and to establish world wide basic standards to comply with the major legislative regulations in the world, e.g. EU, USA and Japan.

For several potential problem areas compromises were needed and will be needed in the future.

In order to ensure that the revised ISO Standard is actively used in the ISO countries world wide, procedures are necessary to replace the existing national standards and technical regulations by the revised ISO Standard. In the European Community ISO and the European Committee for Standardization (CEN) agreed on technical co-operation between ISO and CEN (Vienna Agreement) with the aim to replace the European Standards (EN) by the later worldwide ISO standards by using the parallel voting procedure automatically. Other countries are asked to issue similar agreements to ensure that their national standards and technical regulations are replaced by this ISO Standard.

Only by these actions there will be the guarantee that products in accordance with the ISO standards could be shipped world wide freely without any technical barriers.

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Industrial trucks — Safety requirements and verification —

Part 2: Self-propelled variable-reach trucks

1 Scope

1.1 This part of 3691 specifies the safety requirements for self-propelled seated rider operated variable reach trucks as defined in 3.1 equipped with load handling devices for normal industrial duties, e.g. fork arms or platforms, or attachments for specified applications mounted directly on non-slewing lifting means or an auxiliary mast fixed at the end of the lifting means.

Fork arms, load platforms and integrated attachments are considered to be parts of the industrial truck.

NOTE Trucks can be equipped with stabilizers, axle locking or lateral levelling devices.

Attachments mounted on the load carrier or on the fork arms which are removable, by the user are not considered to be part of the industrial truck.

For attachments the appropriate clauses of this standard are applicable.

1.2 This part of 3691 does not apply to:

- Rough terrain variable reach trucks oSIST prEN ISO 3691-2:2008
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- Machines designed primarily for earth moving, such as loaders and dozers, even though their buckets and blades are replaced with forks.
- Machines with variable length load suspension elements (chain, ropes, etc.) from which the load may swing freely in all directions

This part of ISO 3691 does not cover those requirements to reduce hazards which may occur:

- a) during construction;
- b) when handling suspended loads which may swing freely;
- c) when using trucks on public roads;
- d) when operating in potentially explosive atmospheres;
- e) from noise, vibration, electromagnetic compatibility and visibility.

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 21281:2005, *Construction and layout of pedals of self-propelled sit-down rider-controlled industrial trucks – Rules for the construction and layout of pedals*

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ISO 2328:1993, *Fork-lift trucks -- Hook-on type fork arms and fork arm carriages -- Mounting dimensions*

ISO 2330:2002, *Fork lift trucks — Fork arms — Technical characteristics and testing*

ISO 2867:1994, *Earth-moving machinery — Safety requirements — Access systems*

ISO 3287:1999, *Powered industrial trucks — Symbols for operator controls and other displays*

ISO 3411:1995, *Earth-moving machinery — Human physical dimensions of operators and minimum operator space envelope*

ISO 3691-1.2:2006, *Industrial trucks - Safety requirements and verification — Part 1: Self-propelled trucks, other than driverless trucks, variable reach trucks, and burden carrier trucks*

ISO 3795:1989, *Road vehicles, tractors and machinery for agriculture and forestry – Determination of burning behaviour of interior materials*

ISO 5053:1995, *Powered industrial trucks — Terminology*

ISO 6055:2004, *Industrial trucks — Overhead guards — Specification and testing*

ISO 6292:1996, *Powered industrial trucks and tractors — Brake performance and component strength*

ISO 9533:1989, *Earth-moving machinery — Machine mounted forward and reverse audible warning alarm — Sound test method*

ISO 5010: 1992, *Earth moving machinery — Rubber tyred machines — Steering requirements*

ISO 10658:1996, *Industrial trucks operating in special conditions of stacking with the load laterally displaced by powered devices — Additional stability tests*

ISO 13284:2003, *Fork lift trucks — Fork arm extensions and telescopic fork arms — Technical characteristics and strength requirements.*

ISO 13562-1:2000, *Industrial variable reach trucks — Part 1: Stability tests*

ISO 13562-2:2001, *Industrial variable reach trucks — Part 2: Additional stability tests for trucks handling freight containers of 6 m length and above*

ISO 15870:2000, *Powered industrial trucks — Safety signs and hazard pictorials — General principles*

ISO 15871:2000, *Industrial trucks – Specification for indicator lights for container handling and grapple arm operations*

ISO 20898, *Industrial trucks – Electrical requirements*

ISO 24135, *Industrial trucks – Operator restraint systems – Specifications and test methods for lap-type seat belts*

3 Terms and definitions

For the purposes of this standard, the terms and definitions of the main truck components given in ISO 5053 together with the following apply.

3.1**self-propelled seated rider operated variable reach trucks**

self-propelled seated rider operated variable reach trucks (hereinafter referred to as “trucks”) are counterbalanced lift trucks with one or more articulated arms, telescopic or not, non-slewing, as defined in ISO 5053, clause 4.13.2.2 used for stacking loads.

3.2**actual capacity of truck**

load in kg (depending on lift height and/or forward reach, attachment and load centre distance) specified by the manufacturer, taking into account the stability test results and as indicated by the load chart

3.3**actual capacity at maximum lift height with forks**

maximum load “Q2” in kg, specified by the manufacturer, that the truck is capable of lifting to its maximum height in normal operating conditions.

NOTE It is equal to the maximum load “Q2” with centre of gravity “G” (see Figure A.1), carried on the fork arms at the standard load centre “D” as specified in A.1 and with the boom adjusted to its maximum height

3.4**actual capacity at maximum lift height with spreader**

maximum load “Q2” in kg, specified by the manufacturer, that the truck is capable of lifting to its maximum height in normal operating conditions.

NOTE It is equal to the maximum load “Q2” with centre of gravity “G” (see Figure A.2), carried using a spreader at the standard load centre distance as specified in A.2 and with the boom adjusted to its maximum height

3.5**actual capacity at maximum forward reach with forks**

maximum load “Q3” in kg, specified by the manufacturer that the truck is capable of lifting to its maximum forward reach in normal operating conditions.

NOTE It is equal to the maximum load “Q3” with centre of gravity “G” (see Figure A.1), carried on the fork arms at the standard load centre “D” as specified in A.1 and with the boom adjusted to its maximum forward reach

3.6**actual capacity at maximum forward reach with spreader**

maximum load “Q3” in kg, specified by the manufacturer that the truck is capable of lifting to its maximum forward reach in normal operating conditions.

NOTE It is equal to the maximum load “Q3” with centre of gravity “G” (see Figure A.2), carried using a spreader at the standard load centre distance as specified in A.2 and with the boom adjusted to its maximum forward reach

3.7**actual capacity with stabilisers in use (if equipped)**

maximum load in kg, specified by the manufacturer that the truck is capable of lifting with the stabilisers deployed

3.8**rated capacity of removable attachments**

maximum load in kg that the attachment is permitted by its manufacturer to handle in normal operation under specified conditions.

NOTE For carriages, this does not include the capacity of the forks

3.9**axle locking**

mechanism designed to stop oscillation of the rear axle to improve truck stability