AS 2359.6—2013

Australian Standard®

# Powered industrial trucks

# Part 6: Self-propelled industrial trucks, other than driverless trucks, variable-reach trucks and burden-carrier trucks (ISO 3691-1:2011, MOD)



STANDARDS Australia

This Australian Standard® was prepared by Committee ME-026, Industrial Trucks. It was approved on behalf of the Council of Standards Australia on 6 February 2013.
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The following are represented on Committee ME-026:

- Australian Industrial Truck Association
- Australian Industry Group
- Construction and Mining Equipment Industry Group
- Hire and Rental Industry Association of Australia
- Safety Institute of Australia
- WorkCover New South Wales
- WorkSafe Victoria

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Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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# Part 6: Self-propelled industrial trucks, other than driverless trucks, variable-reach trucks and burden-carrier trucks (ISO 3691-1:2011, MOD)

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# PREFACE

This Standard was prepared by the Standards Australia Committee ME-026, Industrial Trucks, to supersede AS 2359.6—1995, *Powered industrial trucks—Safety code*.

This Standard is an adoption with national modifications, and has been reproduced from, ISO 3691-1:2011, *Industrial trucks—Safety requirements and verification*, Part 1: *Self-propelled industrial trucks, other than driverless trucks, variable-reach trucks and burden-carrier trucks*.

Australia does not follow the classification of type A, B and C standards. However, requirements in this Standard take precedence over requirements in other more general standards.

For the purpose of this Australian Standard, the ISO text should be modified as outlined in Appendix ZZ.

Throughout the entire document all references to ISO/TS 3691-7 are to be ignored as they relate to requirements for Europe only.

As this Standard is reproduced from an International Standard, the following applies:

(a) Its number appears on the cover and title page while the International Standard number appears only on the cover.

(b) In the source text 'this part of ISO 3691' should read 'this Australian Standard'.

(c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

| ISO | | AS | |
|---|---|---|---|
| 2330 | Fork-lift trucks—Fork arms—Technical characteristics and testing | 2359 | Powered industrial trucks |
| | | 2359.14 | Part 14: Fork arms—Technical characteristics and testing |
| 3287 | Powered industrial trucks—Symbols for operator controls and other displays | 2359.5 | Part 5: Symbols for operator controls and other displays |
| 5053 | Powered industrial trucks—Terminology | 2359.7 | Part 7: Terminology |
| 6055 | Industrial trucks—Overhead guards—Specification and testing | 2359.9 | Part 9: Overhead guards—Specification and testing (ISO 6055:2004, MOD) |
| 13284 | Fork-lift trucks—Fork-arm extensions and telescopic fork arms—Technical characteristics and strength requirements | 2359.15 | Part 15: Fork-arm extensions and telescopic fork arms—Technical characteristics and strength requirements |
| 15870 | Powered industrial trucks—Safety signs and hazard pictorials—General principles | 2359.16 | Part 16: Safety signs and hazard pictorials—General principles |
| IEC | | AS/NZS | |
| 60695 | Fire hazard testing | 60695 | Fire hazard testing |
| 60695-11-10 | Part 11-10: Test flames—50 W horizontal and vertical flame test methods | 60695.11.10 | Part 11.10: Test flames—50 W horizontal and vertical flame test methods |

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

CONTENTS

# 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.

## 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 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 3691-7:2011 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.

AUSTRALIAN STANDARD

# Powered industrial trucks

## Part 6:
## Self-propelled industrial trucks, other than driverless trucks, variable-reach trucks and burden-carrier trucks (ISO 3691-1:2011, MOD)

## 1 Scope

This part of ISO 3691 gives safety requirements and the means for their verification for the following types of self-propelled industrial trucks (hereafter referred to as *trucks*), as defined in ISO 5053:

a) industrial counterbalanced trucks;

b) reach trucks with retractable mast or retractable fork arm carriage;

c) straddle trucks;

d) pallet-stacking trucks;

e) high-lift platform trucks;

f) trucks with elevating operator position up to 1 200 mm;

g) side-loading trucks (one side only);

h) lateral-stacking trucks (both sides), and lateral and front-stacking trucks;

i) pallet trucks;

j) bidirectional and multidirectional trucks;

k) tractors with a drawbar pull up to and including 20 000 N;

l) rough-terrain counterbalanced trucks;

m) industrial trucks powered by battery, diesel, gasoline or LPG (liquefied petroleum gas).

NOTE 1 Trucks powered by CNG (compressed natural gas) are not dealt with. It is intended that CNG and other power sources be addressed in future revisions of this part of ISO 3691.

For trucks with an elevating operator position of more than 1 200 mm and/or trucks designed to travel with an elevated load of more than 1 200 mm, this part of ISO 3691 is intended to be used in conjunction with ISO 3691-3.

NOTE 2 ISO 3691-3 is not applicable to counterbalanced fork lift trucks or trucks intended for container handling.

NOTE 3 Some low-level order pickers with an elevating operator's position up to and including 1 200 mm lift height can be equipped with an additional lifting device to lift the load to a maximum lift height of 1 800 mm.



 