

PD ISO/TS 3691-8:2012



BSI Standards Publication

Industrial trucks — Safety requirements and verification

Part 8: Regional requirements
for countries outside the
European Community

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National foreword

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

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Industrial trucks — Safety requirements and verification —

Part 8: Regional requirements for countries outside the European Community

Chariots de manutention — Exigences de sécurité et vérification —

*Partie 8: Exigences régionales pour les pays en dehors de la
Communauté européenne*



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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/TS 3691-8 was prepared by Technical Committee 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 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]

Introduction

The ISO 3691 series has been developed to provide globally relevant International Standards for industrial trucks. This goal was achieved with most of the issues. Where divergent regional requirements remain, these are addressed by this part of ISO 3691 and by ISO/TS 3691-7.

ISO/TS 3691-7 addresses those legal requirements related to European Directives which could not be accepted worldwide. ISO/TS 3691-8 addresses requirements related to regulations in force in other countries that are not applicable elsewhere.

This part of ISO 3691 does not repeat all the technical rules which are state of the art and are applicable to the material used to construct the industrial truck. For these, see ISO 12100.

Industrial trucks — Safety requirements and verification —

Part 8: Regional requirements for countries outside the European Community

1 Scope

This part of ISO 3691 gives regional requirements for specific countries outside the European Community (EC) and European Economic Area (EEA) for the types of industrial trucks specified in the scopes of ISO 3691-1, ISO 3691-2, ISO 3691-3, ISO 3691-4 and ISO 3691-6.

It is intended to be used in conjunction with each of those parts of ISO 3691.

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

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*

ISO 3691-2, *Industrial trucks — Safety requirements and verification — Part 2: Self-propelled variable-reach trucks¹⁾*

ISO 3691-3:—¹⁾, *Industrial trucks — Safety requirements and verification — Part 3: Additional requirements for trucks with elevating operator position and trucks specifically designed to travel with elevated loads*

ISO 3691-4, *Industrial trucks — Safety requirements and verification — Part 4: Driverless industrial trucks and their systems¹⁾*

ISO 3691-6, *Industrial trucks — Safety requirements and verification — Part 6: Burden and personnel carriers¹⁾*

ISO 5053, *Powered industrial trucks — Terminology*

ISO 20898, *Industrial trucks — Electrical requirements*

1) To be published.

ANSI/ITSDF B56 (all parts), *Safety Standard for Low Lift and High Lift Trucks*

AS 2359.2, *Industrial trucks — Operation*

AS 4983, *Gas fuel systems for forklifts and industrial engines*

AS/NZS 1891-1, *Industrial fall-arrest systems and devices — Part 1: Harnesses and ancillary equipment*

AS/NZS CISPR 14.1, *Electromagnetic Compatibility — Requirements for household appliances, electrical tools and similar apparatus — Part 1: Emission*

UL 558, *Industrial Trucks, Internal Combustion Engine-Powered²⁾*

UL 583, *Electric-Battery-Powered Industrial Trucks²⁾*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5053, ISO 3691-1, ISO 3691-2, ISO 3691-3, ISO 3691-4 and ISO 3691-6 apply.

4 Safety requirements and/or protective measures

4.1 Regional requirements additional to or replacing those given in ISO 3691-1, ISO 3691-2, ISO 3691-4 and ISO 3691-6

4.1.1 Normative references

The normative references of ISO 3691 are subject to regional requirements.

For North America, the cited references are normative but the normative references within the cited normative references are informative only.

4.1.2 Electrical requirements

For North America, electrical systems and equipment shall be in accordance with

- UL 558 for internal-combustion-engine powered trucks, and
- UL 583 for electric-battery-powered trucks,

applicable at the time of manufacture.

For all other regions, electrical systems and equipment shall be in accordance with ISO 20898.

4.1.3 Travel speed

4.1.3.1 Pedestrian-controlled trucks

The following applies for variable-speed pedestrian-controlled trucks.

2) Underwriters Laboratories (UL) standard.

- a) For North America, the maximum speed shall meet the requirements of ANSI/ITSDF B56.1 applicable at the time of manufacture.
- b) For all other regions, the maximum speed shall not exceed 6 km/h.

See ISO 3691-1:2011 4.2.3.1.

4.1.3.2 Stand-on trucks and pedestrian-controlled trucks with foldable platform

The following applies to stand-on trucks and pedestrian-controlled trucks with a foldable platform.

- a) For North America, the maximum speed shall meet the requirements of ANSI/ITSDF B56.1 applicable at the time of manufacture.
- b) For all other regions, the maximum speed shall not exceed 16 km/h.

See ISO 3691-1:2011 4.2.3.2.

4.1.3.3 Travelling with mast elevated

For Australia, the following applies to electric counterbalanced trucks and reach trucks when travelling with the mast elevated.

The truck speed shall be reduced to a maximum speed of 3 km/h when

- the mast is above staging for trucks with a mast with full free lift,
- the forks are lifted more than 500 mm from the ground for trucks with a mast with limited free lift.

4.1.4 Brakes

For Japan, the following applies to brakes.

- At 20 km/h travel speed (if maximum speed is less than 20 km/h, at the maximum speed of the truck), unladen trucks shall stop within 5 m.
- At 10 km/h travel speed (if maximum speed less than 10 km/h, at the maximum speed of the truck), laden trucks shall stop within 2,5 m.
- The parking brake, without the assistance of operator, shall be capable of holding the truck on the following gradients:
 - 1) for unladen trucks, 20%;
 - 2) for laden trucks, 15%.

See ISO 3691-1:2011 4.3.1.

4.1.5 Additional operation from alongside pedestrian-controlled and stand-on trucks (coasting)

The following applies to the additional operation of pedestrian-controlled and stand-on trucks from alongside the truck.

a) For Australia

Low-lift order-picker trucks may be provided with a coasting system which cuts off current to the drive motor but which does not apply the brake when the travel control device is released. Means to apply the

brake and activate the truck's warning device shall be readily operable while walking alongside the truck. The speed with this system shall not exceed 4 km/h whenever the coasting system is activated. Activation of the travel control device from outside of the truck shall only be possible when the truck is stationary.

Additionally, a label or symbol shall be affixed to the truck, indicating that the truck is equipped with a coasting system.

NOTE The described function is commonly known as "coasting".

b) For North America

Low-lift order-picker trucks provided with a coasting system shall meet the requirements of ANSI/ITSDF B56.1 applicable at the time of manufacture.

c) For all other regions (and including Australia)

Activation of the travel control device from outside of the truck shall only be possible when the truck is stationary.

While operating the travel control from outside of the truck, the speed shall not exceed 4 km/h. Brakes shall be automatically applied when the travel control device is released.

NOTE Trucks compliant with either a) or c) are currently allowed in Australia.

See ISO 3691-1:2011 4.4.2.7.

4.1.6 Liquefied petroleum gas (LPG) trucks

For Australia, the following applies to LPG-powered trucks:

— LPG component installations for trucks shall comply with the requirements of AS 4983.

4.1.7 Lift chains

The minimum safety factor of the lifting mechanism, K_1 , shall be as follows.

a) For Australia, Japan and South Africa

$K_1 \geq 5$ for all trucks.

b) For North America

1) For trucks $\leq 10\,000$ kg rated capacity: $K_1 \geq 5$.

2) For trucks $> 10\,000$ kg rated capacity: $K_1 \geq 5$ to $0,2(Q' - 10)$, but not less than 4, where Q' is the truck rated capacity in tonnes.

See ISO 3691-1:2011 4.6.1.

4.1.8 Fork arms

For Australia, Japan and North America, the following applies to fork arms.

— Solid-section fork arms shall be manufactured and tested in accordance with ISO 2330.

— The safety factor shall be $\geq 3:1$ for all trucks.

See ISO 3691-1:2011 4.6.5.6.1

4.1.9 Platforms

For Australia, the following applies to operator platforms.

- For trucks where the operator is elevating, guarding shall be provided as per the requirements of ISO 3691-3:—, 4.4.5.1 and 4.4.5.3.

NOTE There is no lift height limitation on this requirement.

4.1.10 Operator restraint

For Australia, the following applies to operator restraints.

- The operator's seat shall have a lateral support device that reduces the risk of entrapment of the operator's torso between the truck and the ground in the event of a tip-over, provided the operator wears a properly adjusted lap-type seat belt.
- Where seatbelts are fitted, they shall be interlocked to prevent the truck from travel motion unless the seatbelt is buckled. In addition, the seatbelt interlock shall include the sequencing/logic of the seatbelt switch with a seat pressure switch. The weight of the operator on the seat shall be detected prior to the seatbelt switch being engaged. In addition to the seatbelt interlock sequencing, it shall be linked to the neutral switch and the handbrake to ensure it is applied before the truck can be started. The system shall be tamper-proof.

See ISO 3691-1:2011 4.7.8.

4.1.11 Electromagnetic compatibility (EMC)

For Australia, the following applies to EMC.

- Trucks equipped with an on-board battery charger shall comply with AS/NZS CISPR 14.1.

4.1.12 Visibility

For North America, the following applies to visibility.

- The manufacturer and user, in consultation with each other, shall determine the ancillary devices or alternated operating procedures that are necessary to assist the operator or alert personnel in the vicinity when the design requirements for a specific truck application preclude meeting the visibility criteria of ISO 13564-1.

4.1.13 User responsibilities

The following applies to the responsibilities of the users of industrial trucks.

a) For Australia

Users shall follow the requirements of AS 2359.2.

b) For North America

Users shall follow the requirements of the applicable part of ANSI/ITSDF B56.

4.1.14 Marking

For Australia, the following applies to marking.

- The requirements given in ISO 3691-1:2011, 6.3.1.1 i) and j) are not required except for tractors.
- For trucks with a tilting mast, the actual capacity at maximum elevation with mast tilted forward and with load centred shall be shown.

See ISO 3691-1:2011 6.3.1.1.

4.2 Regional requirements additional to or replacing those given in ISO 3691-3

4.2.1 Platforms equipped with a fall protection device

The following applies to platforms equipped with a fall protection device.

a) For Australia

The fall protection harness and lanyard shall comply with AS/NZS 1891-1.

b) For North America

Operator stand-on platforms not equipped with a guarding system shall be equipped with a fall protection device that meets the requirements of ANSI/ITSDF B56.1 applicable at the time of manufacture.

The guarding specified in ISO 3691-3:—, 4.3.5.2 and 4.3.5.3 is not required if using this type of protection.

4.2.2 Anchorage points of fall protection device(s)

The following applies to anchorage points for fall protection device(s).

a) For North America

The anchorage point(s) of the fall protection device(s) shall meet the requirements of ANSI/ITSDF B56.1 applicable at the time of manufacture.

b) For Australia

The operator platform anchorage point(s) shall be capable of supporting a load of 15 kN for one person with maximum deflection of 10 mm. If a second person is to use the same anchorage point, then the anchorage point shall be capable of supporting a load of 21 kN.

The anchorage point shall be marked to show the test loading and how many lanyards it is capable of supporting.

4.2.3 Operator protection

For Australia, the following applies to operator protection.

- For trucks where the operator is elevated, guarding shall be provided as per the requirements of ISO 3691-3:—, 4.3.5.1 and 4.3.5.3.

4.2.4 Marking

For Australia, the following applies to the marking of the anchorage point, which shall be marked with

- the manufacturer's details, and
 - Free fall arrest — one person 15 kN
- or, if tested for two persons,
- Free fall arrest — two persons 21 kN.

Bibliography

- [1] ISO 12100, *Safety of machinery — General principles for design — Risk assessment and risk reduction*
- [2] ISO 13564-1, *Powered industrial trucks — Test methods for verification of visibility — Part 1: Sit-on and stand-on operator trucks and variable-reach trucks up to and including 10 t capacity*
- [3] ISO 14121-1, *Safety of machinery — Risk assessment — Part 1: Principles*

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