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Rough-terrain trucks — Safety requirements and verification —

Part 5:

Interface between rough-terrain truck and integrated personnel work platform

Chariots tout-terrain — Exigences de sécurité et vérification

ICS: 53.060

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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.

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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.

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ISO 10896-5 was prepared by Technical Committee ISO/TC 110, *Industrial trucks*, Subcommittee SC 4, *Rough-terrain trucks*.

ISO 10896 consists of the following parts, under the general title *Rough-terrain trucks — Safety requirements and verification*:

- *Part 1: Variable-reach trucks*
- *Part 2: Slewing variable-reach trucks*
- *Part 4: Additional requirements for variable-reach trucks handling freely suspended loads*
- *Part 5: Interface between rough-terrain truck and integrated personnel work platform*
- *Part 6: Tilting operator's cabs*
- *Part 7: Longitudinal load moment systems*

Lorry-mounted trucks are to form the subject of future part 3.

Introduction

This part of ISO 10896 only deals with the interface between a variable reach rough-terrain truck and an integrated personnel work platform, which in this case is considered as interchangeable equipment.

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Rough-terrain trucks — Safety requirements and verification —

Part 5: Interface between rough-terrain truck and integrated personnel work platform

1 Scope

This part of ISO 10896 defines design and safety requirements, and means for their verification for the interface between a non-slewing or slewing variable reach rough-terrain truck (here-after also referred to as trucks) and an integrated personnel work platform (herein after referred to as integrated PWP).

It does not address the design or safety requirements related to the personnel work platform itself. These requirements are covered within National and International standards for Mobile Elevating Work Platforms.

Personnel work platforms without control(s) which affect movement or mechanism(s) which interlock the platform to the truck, often referred to as non-integrated work platforms, are excluded from this part of ISO 10896.

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 10986-1, *Rough-terrain trucks — Safety requirements and verification — Part 1: Variable-reach trucks*

ISO 10986-2¹⁾, *Rough-terrain trucks — Safety requirements and verification — Part 2: Slewing variable reach trucks*

ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

ISO 13849-1:2006, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*

ISO 16368:2010, *Mobile elevating work platforms — Design, calculations, safety requirements and test methods*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10896-1, ISO 10896-2, ISO 12100:2010 and the following apply.

3.1

interlocking device

mechanical, electrical or other type of device, the purpose of which is to prevent the operation of hazardous machine functions under specified conditions (generally as long as a guard is not closed)

[SOURCE: ISO 12100:2010, 3.28.1]

1) Under preparation.

**3.2
interchangeability**

condition that exists between devices or systems that exhibit equivalent functionality, interface features and performance to allow one to be exchanged for another, without alteration, and achieve the same operational service

[SOURCE: ISO/TS 17261:2005, 3.18]

**3.3
integrated personnel work platform
<integrated PWP>**

work platform with controls, fitted to the truck which is mechanically, electrically and where applicable hydraulically connected, locked and interlocked designed for elevating persons, tools, and materials to working positions

**3.4
locking mechanism**

used to lock, either by the user or automatically, the integrated PWP to the truck and prevents unintended movement

**3.5
locking system**

device/s ensuring that the platform and its parts are maintained in the position of use

4 Safety requirements and/or protective/risk reduction measures

4.1 General

Trucks shall comply with the safety requirements and/or protective measures of this Clause.

In addition, the truck shall be designed according to the principles of ISO 12100 for relevant but not significant hazards which are not dealt with by this document.

Trucks equipped with an integrated PWP shall be designed in accordance with ISO 16368:2010.

4.2 Interface with the integrated PWP

4.2.1 General

The locking mechanism and locking system for the integrated PWP of the truck may be manual or powered and shall not be possible from the platform.

The connection of the integrated PWP to the truck shall enable the truck to recognize that an integrated PWP has been fitted.

Verification shall be carried out by means of design check and functional test.

4.2.2 Coupling of the integrated PWP

The interface for the integrated PWP shall be designed to be securely attached to the truck, locked and interlocked. The interface shall be designed to avoid uncontrolled movements of the platform relative to the carriage of the truck.

The interlocking device shall prevent any powered movement controlled from the integrated PWP when it is connected but not securely attached and locked to the truck.

The sensing part of the interlocking device shall be located on the integrated PWP and be designed and protected to minimize damage during the expected life of the truck when used in other foreseeable applications.

The safety related part of the control system fulfilling the interlocking function shall comply with ISO 13849-1:2006, [PLC].

Verification shall be carried out by means of design check and functional test.

4.2.3 Decoupling of the work platform from the truck

It shall not be possible to release a powered locking system when the controls are active and the integrated PWP is selected.

Decoupling of the integrated PWP from the truck shall require two separate intentional actions (e.g. one to unlock and a second to detach)

Verification shall be carried out by means of design check and visual examination.

The safety related part of the control system fulfilling the interlocking function shall comply with ISO 13849-1:2006, [PLD].

NOTE CEN/TR 1459-6 provides useful information and a complete risk assessment determining the performance levels of trucks fitted with a PWP, these are consistent with the PLr's in [Clauses 4.2.2](#) and [4.2.3](#).

4.2.4 Cables and connections

Means shall be provided to safely store any connections when not in use. Such means shall prevent damage and/or contamination to disconnected components.

Verification shall be carried out by means of design check and visual examination.

4.3 Electromagnetic compatibility

The relevant electromagnetic compatibility (EMC) requirements shall be observed.

Verification shall be carried out by means of type test.

5 Verification of safety requirements and/or protective/risk reduction measures

5.1 Design verification

The manufacturer shall meet the applicable verification requirements in [Clause 4](#).

5.2 Functional verification

Functional verification shall be carried out on each interface type to verify the function as defined by manufacturer of the integrated PWP.

6 Information for use

6.1 Instructions

6.1.1 Interchangeability

This information shall include:

- a) information on the model(s) of truck approved for use with the platform.