INTERNATIONAL STANDARD

ISO 10896-4

First edition
2015-11-01

Rough-terrain trucks — Safety requirements and verification —

Part 4: Additional requirements for variable-reach trucks handling freely suspended loads

Chariots tout-terrain — Exigences de sécurité et vérification —

Partie 4: Exigences additionnelles pour chariots à portée variable manipulant des charges suspendues à oscillation libre

Reference number
ISO 10896-4:2015(E)

© ISO 2015



COPYRIGHT PROTECTED DOCUMENT

© ISO 2015, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **2**
4 Safety requirements and/or protective measures **3**
4.1 General requirements 3
4.2 Mounting and fixing 3
4.3 Design and strength 4
4.3.1 Lifting attachment 4
4.3.2 Wire rope hoist attachments 4
4.4 Stability 5
4.4.1 Load chart for suspended load lifting attachment(s) 5
5 Verification of the safety requirements and/or protective measures **5**
5.1 General 5
5.2 Tests for trucks fitted with lifting attachments 5
5.3 Static strength test 5
5.3.1 General 5
5.3.2 Test procedure 5
5.3.3 Verification 5
5.4 Dynamic structural tests 5
5.4.1 General 5
5.4.2 General test set up 5
5.4.3 Test procedure 6
5.4.4 Verification 6
5.5 Additional requirements for pick and carry 7
5.5.1 General 7
5.5.2 Stability by test loading 7
5.5.3 Requirements 7
6 Information for use **7**
6.1 Content requirements 7
Bibliography **9**

© ISO 2015 – All rights reserved

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 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 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*

The following part is under preparation:

— *Part 7: Longitudinal load moment systems*

Additional user requirements for variable-reach trucks handling freely suspended loads are given in ISO 11525-4.

 © ISO 2015 – All rights reserved

Introduction

This International Standard is one of a set of standards produced by ISO/TC 110/SC 4 as part of its program of work regarding standardization of terminology, general safety, performance and user requirements for rough-terrain trucks (hereafter also referred to as trucks).

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

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

— machine manufacturers (small, medium and large enterprises);

— health and safety bodies (regulators, accident prevention organisations, market surveillance, etc.).

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

— machine users/employers (small, medium and large enterprises);

— machine users/employees (e.g. trade unions, organizations for people with special needs);

— service providers, e.g. for maintenance (small, medium and large enterprises);

— consumers (in the case of machinery intended for use by consumers)

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

The machinery and systems 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 type-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.

© ISO 2015 – All rights reserved

Rough-terrain trucks — Safety requirements and verification —

Part 4: Additional requirements for variable-reach trucks handling freely suspended loads

1 Scope

This part of ISO 10896 specifies the additional safety requirements and means of verification for rough-terrain variable-reach trucks (hereafter referred to as trucks) fitted with a lifting attachment for handling suspended loads which can swing freely in one or more directions. It is applicable to trucks covered by ISO 10896-1 and ISO 10896-2.

This part of ISO 10896 does not apply to:

— the lifting of suspended loads which by design of the load or the lifting attachments does not allow the load to swing freely in any direction;

— the handling of flexible intermediate bulk containers, as defined in ISO 21898, carried under the forks of the truck;

— any attachments/means used for lifting personnel;

— lifting accessories not included as part of the lifting attachment;

— freight container handling trucks.

This part of ISO 10896 deals with significant hazards, hazardous situations or hazardous events relevant to trucks handling a freely suspended load, when they are used as intended by the manufacturer.

This part of ISO 10896 is not applicable to rough-terrain variable-reach trucks fitted with a lifting attachment for handling suspended loads manufactured before the date of its publication.

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 7000:2014, *Graphical symbols for use on equipment — Registered symbols*

ISO 10896-1:2012, *Rough-terrain trucks — Safety requirements and verification — Part 1: Variable-reach trucks*

ISO 10896-2:—[1)], *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 22915-10, *Industrial trucks — Verification of stability — Part 10: Additional stability test for trucks operating in the special condition of stacking with load laterally displaced by powered devices*

1) To be published.

© ISO 2015 – All rights reserved

ISO 22915-14, *Industrial trucks — Verification of stability — Part 14: Rough-terrain variable-reach trucks*

ISO 22915-20, *Industrial trucks — Verification of stability — Part 20: Additional stability test for trucks operating in the special condition of offset load, offset by utilization*

ISO 22915-24, *Industrial trucks — Verification of stability — Part 24: Slewing variable-reach rough-terrain trucks*

3 Terms and definitions

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

3.1
lifting attachment
device mounted to the truck from which a lifting accessory or a load can be suspended

EXAMPLE Jib, hoist.

3.2
lifting accessory
component or device fitted to the lifting attachment (e.g. sling), placed between the lifting attachment and the load

3.3
jib
device, telescopic or not, intended to extend forward the lifting point of the truck

Note 1 to entry: See Figure 1.

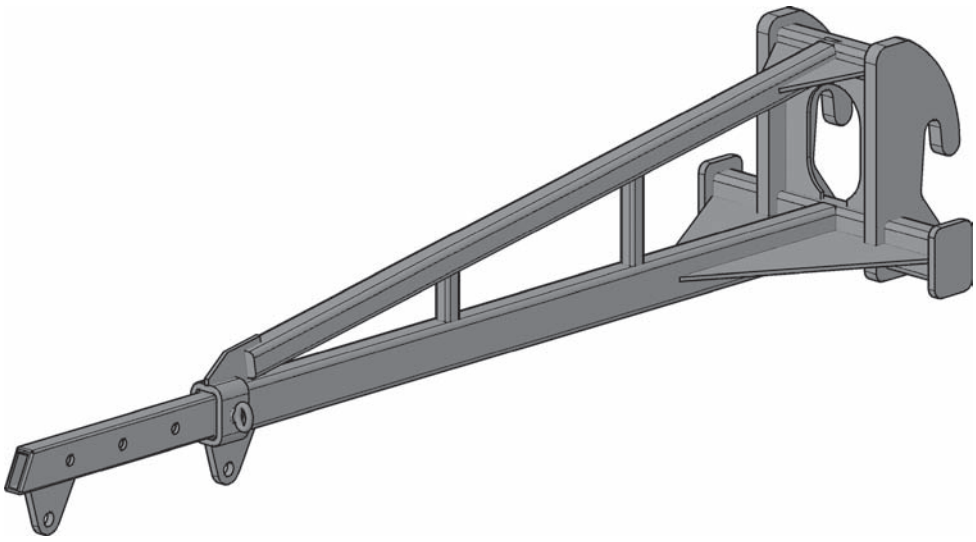


Figure 1 — Example of jib

3.4
hoist
device for lifting and lowering suspended loads over predetermined distances, using ropes or chains

3.5
suspended load
load that can swing freely when attached to a lifting attachment by means of a lifting accessory or a load handling mean (e.g. log clamp)

© ISO 2015 – All rights reserved