
**Industrial trucks — Verification of
stability —**

**Part 5:
Single-side-loading trucks**

*Chariots de manutention — Vérification de la stabilité —
Partie 5: Chariots à chargement latéral*



STANDARDSISO.COM : Click to view the full PDF of ISO 22915-5:2020



COPYRIGHT PROTECTED DOCUMENT

© ISO 2020

All rights reserved. Unless otherwise specified, or required in the context of its implementation, 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
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Test conditions	1
4.1 General	1
4.2 Position of the truck on the tilt table	1
4.3 Position of the load datum point	2
5 Verification of stability	4
6 Marking	4
Bibliography	9

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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 110, *Industrial trucks*, Subcommittee SC 2, *Safety of powered industrial trucks*.

This second edition cancels and replaces the first edition (ISO 22915-5:2014), of which it constitutes a minor revision.

The main change compared to the previous edition is the update of Clause 2 following the replacement of ISO 5053 by ISO 5053-1.

A list of all parts in the ISO 22915 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Industrial trucks — Verification of stability —

Part 5: Single-side-loading trucks

1 Scope

This document specifies the tests to verify the stability of single-side-loading trucks with tiltable or non-tiltable mast or fork arms.

It is applicable to trucks fitted with fork arms and/or attachments.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 3691-1, *Industrial trucks — Safety requirements and verification — Part 1: Self-propelled industrial trucks, other than driverless trucks, variable-reach trucks and burden-carrier trucks*

ISO 22915-1, *Industrial trucks — Verification of stability — Part 1: General*

ISO 5053-1, *Powered industrial trucks — Vocabulary — Part 1: Types of industrial trucks*

3 Terms and definitions

For the purpose of this document, the terms and definitions given in ISO 5053-1 and ISO 22915-1 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

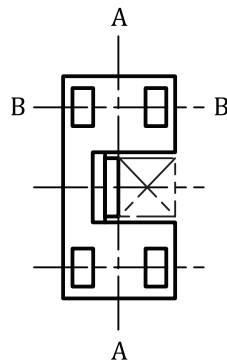
4 Test conditions

4.1 General

See ISO 22915-1.

4.2 Position of the truck on the tilt table

The indication of the articulating steer axle is the centre line of the axle. The allocation of the indication is defined in [Figure 1](#).

**Key**

A-A longitudinal centre plane of the truck

B-B articulating steer axle

Figure 1 — Articulating steer axle, longitudinal centre plane

The truck shall be positioned on the tilt table with the line M-N parallel to the tilt axis, X-Y, of the tilt table.

Point N is the centre point of the area of contact between the tilt table surface and a non-articulating wheel or stabilizer pad. Point M is defined as follows.

- For trucks with an articulating steer axle, B-B, designed to articulate approximately about the longitudinal centre plane of the truck, A-A, the projection onto the tilt table of the point of intersection of the longitudinal centre plane of the truck with the axis of this articulating axle (see [Figure 1](#)).
- For trucks without an articulating axle or with axle locks or stabilizers in use, the centre point of the area of contact between the tilt table surface and another wheel or stabilizer pad.

When the truck rating is related to the use of stabilizers, suspension locks, etc., such devices shall be used during the tests. If the truck can be used without their engagement, an additional test shall be carried out in this condition.

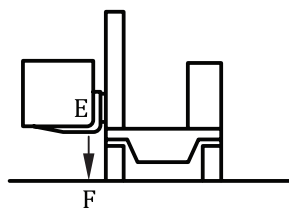
4.3 Position of the load datum point

Tests 1 and 5 shall be conducted with the horizontal position of the load datum point, E (see [Figures 2, 3, and 4](#)) unchanged when elevated from its lowered position.

By means of a plumb line or other suitable equipment, set the mast vertical. Elevate the fork and the prescribed test load to approximately 300 mm above the tilt table. With the front face of the fork arm shank vertical, establish a point, E on the fork or fork carrier having a fixed relationship to the centre of gravity of the test load. Point E shall be used to provide a reference datum, F, on the tilt table. When the mast is elevated, a new point, F₁, on the tilt table can occur, as shown in [Figure 3](#). By the following adjustments this new point, F₁, can be returned to the original location of F.

For trucks with tiltable masts, changes in the location of F₁ shall be corrected by varying the tilt of the mast within the limits provided by the design of the truck.

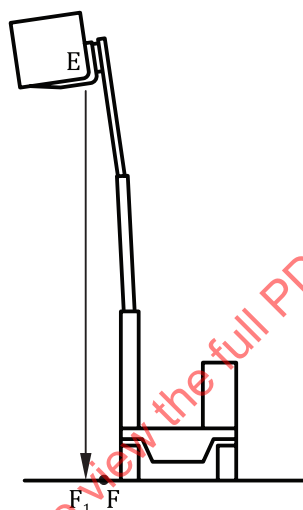
Adjustments cannot be made on trucks having non-tiltable masts or fork carrier. Mast retraction is not permitted.



Key

- E point on the inside heel of the fork arm
- F reference datum on tilt table

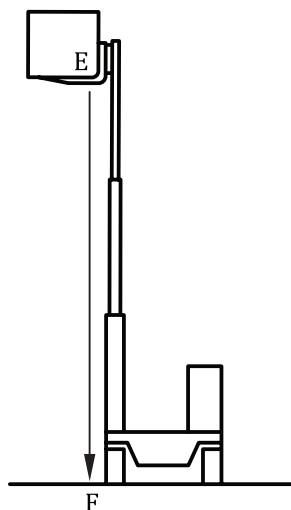
Figure 2



Key

- E point on the inside heel of the fork arm
- F reference datum on tilt table
- F₁ new point on the tilt table

Figure 3



Key

- E point on the inside heel of the fork arm
- F reference datum on tilt table

Figure 4

5 Verification of stability

The stability shall be verified according to [Table 1](#).

6 Marking

The capacity under the operating condition, with stabilizers and/or axle locking engaged and disengaged, as determined by this stability test, shall be indicated on an information plate in view of the operator in the normal operating position according to ISO 3691-1.

Table 1 — Verification of stability

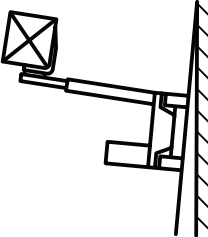
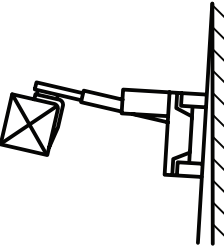
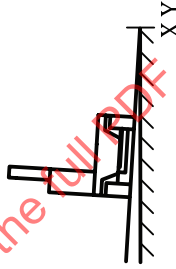
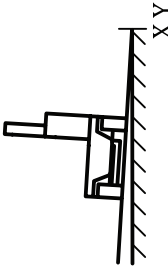
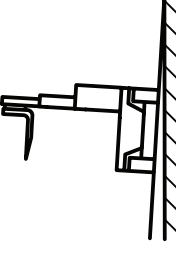
Test criteria		Test 1	Test 2	Test 3 ^a	Test 4 ^a	Test 5
Direction of test	Lateral	x	x	x	x	x
Mode of operation	Travelling			x	x	
	Stacking	x	x			x
Load at load centre	With	x	x			
	Without			x	x	x
Lift height	Maximum	x	x			x
	Travel			x ^a	x ^a	
Position of load carrier device	Retracted		x		x	x
	Extended	x				
Position of mast	Vertical	x (see 4.3)			Position so that the truck is in the condition of least stability	
	Full rearward tilt		x			
Platform slope for rated capacity	<5 000 kg	4 %		(8 + 0,62v) % (14 % max.)	(18 + 0,62v) % (35 % max.)	(8 + 0,62v) % (14 % max.)
	≥5 000 kg	3,5 %				
Truck position on tilt table						
1	stabilizer					
v	maximum speed of truck, unladen, on smooth, level ground, km/h					
a	parallel					
a	Travelling with the mast or fork arms tilted backwards if capable, the mast retracted and the forks in the lowered (travelling) position.					

Table 1 (continued)

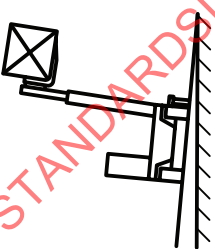
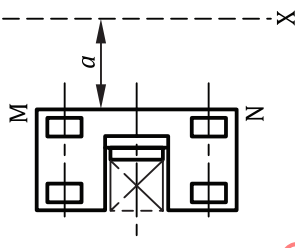
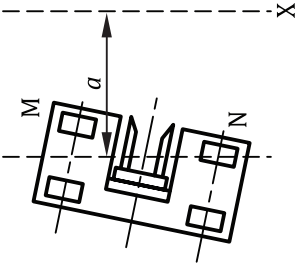
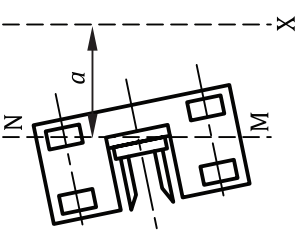
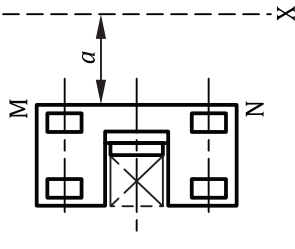
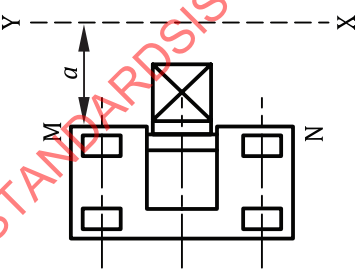
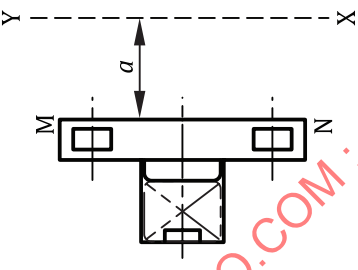
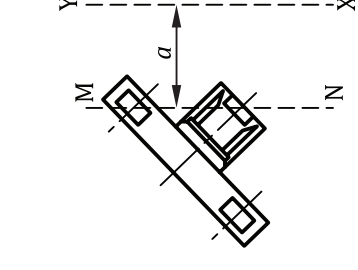
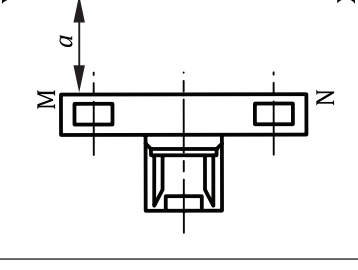
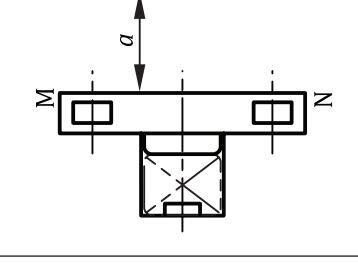
Test criteria	Test 1	Test 2	Test 3 ^a	Test 4 ^a	Test 5
Truck position on tilt table					
1 stabilizer					
v maximum speed of truck, unladen, on smooth, level ground, km/h					
a parallel					
a Travelling with the mast or fork arms tilted backwards if capable, the mast retracted and the forks in the lowered (travelling) position.					

Table 1 (continued)

Test criteria	Test 1	Test 2	Test 3 ^a	Test 4 ^a	Test 5
Truck position on tilt table	 As per 4.2 b)	 As per 4.2 b)	 As per 4.2 b)	 As per 4.2 b)	 As per 4.2 b)
1 stabilizer					
v maximum speed of truck, unladen, on smooth, level ground, km/h					
a parallel					
a Travelling with the mast or fork arms tilted backwards if capable, the mast retracted and the forks in the lowered (travelling) position.					