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**Rough-terrain trucks — Safety  
requirements and verification —**

**Part 2:  
Slewing trucks**

*Chariots tout-terrain — Exigences de sécurité et vérifications —  
Partie 2: Chariots rotatifs*

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# Contents

	Page
<b>Foreword</b> .....	<b>vi</b>
<b>Introduction</b> .....	<b>vii</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>2</b>
<b>3 Terms and definitions</b> .....	<b>3</b>
<b>4 Requirements</b> .....	<b>8</b>
4.1 General.....	8
4.1.1 Sharp edges and acute angles.....	8
4.1.2 Stored energy components.....	8
4.1.3 Boom extension and angle indicators.....	8
4.2 Starting/moving.....	8
4.2.1 Unauthorized starting.....	8
4.2.2 Unintended movement.....	9
4.2.3 Uncontrolled motion.....	9
4.2.4 Powered travel movement.....	9
4.2.5 Non-activation of the parking brake.....	9
4.2.6 Inching pedal.....	9
4.3 Brakes.....	9
4.3.1 General.....	9
4.3.2 Failure of energy supply.....	9
4.4 Electrical and electronic systems.....	10
4.4.1 General.....	10
4.4.2 Degree of protection.....	10
4.4.3 Electrical connections.....	10
4.4.4 Over-current protective devices.....	10
4.4.5 Batteries.....	10
4.4.6 Battery disconnection.....	10
4.5 Controls.....	11
4.5.1 General.....	11
4.5.2 Differential locking.....	11
4.5.3 Steering controls.....	12
4.5.4 Load-handling controls.....	13
4.5.5 Multi-function controls.....	13
4.5.6 Stabilizing device control.....	13
4.5.7 Sway/levelling control.....	14
4.5.8 Axle oscillation locking.....	14
4.5.9 Auxiliary hydraulic control.....	14
4.6 Power systems and accessories.....	14
4.6.1 Exhaust systems.....	14
4.6.2 Cooling systems.....	14
4.6.3 Tanks and pressure vessels.....	14
4.7 Stabilizing devices.....	15
4.8 Design requirements for maintenance purposes.....	15
4.8.1 General.....	15
4.8.2 Tilttable cab support device.....	16
4.9 Systems for lifting, tilting and reaching.....	16
4.9.1 Chains and wire ropes.....	16
4.9.2 Hydraulic system.....	17
4.9.3 Maximum load-lowering speed.....	17
4.9.4 Limitation of stroke.....	17
4.9.5 Fork arms, attachments, and quick couplers.....	18
4.9.6 Slewing brake.....	18
4.10 Normal operating position.....	18

4.10.1	General requirements.....	18
4.10.2	Storage of operator's manual.....	18
4.10.3	Hot parts.....	18
4.10.4	Pipes and hoses.....	18
4.10.5	Normal operating position equipped with enclosed cab.....	18
4.10.6	Operator's seat.....	20
4.10.7	Control panels and symbols on displays.....	21
4.11	Operator access.....	22
4.11.1	General requirements.....	22
4.11.2	Enclosed cab openings.....	22
4.12	Protective measures and devices.....	23
4.12.1	Hot parts.....	23
4.12.2	Protection against crushing, shearing, and trapping.....	23
4.12.3	Guards.....	23
4.12.4	Safety signs.....	23
4.12.5	Engine compartment.....	23
4.12.6	Fenders.....	23
4.12.7	Roll-over protective structures (ROPS) and falling object protective structures (FOPS).....	23
4.12.8	Tiltable cab.....	24
4.12.9	Audible warning devices.....	24
4.13	Stability.....	24
4.14	Visibility.....	24
4.15	External lighting devices.....	24
4.16	Fire protection.....	24
4.16.1	Fire resistance.....	24
4.16.2	Fire extinguisher.....	24
4.17	Retrieval, transportation, lifting, and towing.....	24
4.17.1	General.....	24
4.17.2	Retrieval.....	24
4.17.3	Tie-down.....	25
4.17.4	Lifting.....	25
4.17.5	Towing.....	25
4.17.6	Transportation.....	25
4.18	Noise.....	25
4.19	Structural calculations.....	25
4.19.1	General.....	25
4.19.2	Loads and forces.....	25
4.19.3	Calculations.....	27
<b>5</b>	<b>Verification of requirements and safety measures.....</b>	<b>28</b>
5.1	General.....	28
5.2	Functional verification.....	28
5.3	Structural verification.....	28
5.3.1	Test loads.....	28
5.3.2	Static test.....	29
5.3.3	Dynamic testing.....	29
5.4	Maximum load-lowering speed verification.....	30
5.5	Load holding.....	30
<b>6</b>	<b>Information for use.....</b>	<b>30</b>
6.1	General.....	30
6.2	Operator's and maintenance manuals.....	30
6.3	Marking.....	32
6.4	Load charts.....	33
6.4.1	Trucks with load-carrying attachments.....	33
6.4.2	Trucks with non-load-carrying attachments.....	34
<b>Annex A (informative)</b>	<b>List of significant hazards.....</b>	<b>35</b>

<b>Annex B</b> (normative) <b>Attachments and quick couplers</b> .....	<b>40</b>
<b>Annex C</b> (informative) <b>Consistency of direction of motion for load-handling controls</b> .....	<b>43</b>
<b>Annex D</b> (informative) <b>Examples of regular and occasional loads</b> .....	<b>45</b>
<b>Bibliography</b> .....	<b>46</b>

## 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](http://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](http://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*
- *Part 7: Longitudinal load moment systems*

Safety requirements and verification of lorry-mounted trucks is addressed by ISO 20297-1.

## Introduction

Variable-reach trucks are known by a variety of terms, including “telehandlers” and “multi-purpose handlers”.

The rough-terrain variable-reach trucks covered by this part of ISO 10896 are designed to transport loads to and place them on elevated work areas and can be driven on unimproved or disturbed terrain.

They can also be equipped with a variety of attachments (e.g. mowers, sweepers).





# Rough-terrain trucks — Safety requirements and verification —

## Part 2: Slewing trucks

### 1 Scope

This part of ISO 10896 specifies general safety requirements for slewing rough-terrain variable-reach trucks (hereafter known as “trucks”), consisting of a lower chassis with a slewing upper structure equipped with a telescopic lifting means (pivoted boom), on which a load handling device (e.g., carriage and fork arms) is typically fitted. Fork arms and other integrated attachments are considered to be parts of the truck.

Other standards, in addition to the relevant provisions of this part of ISO 10896, can apply to the attachments.

This part of ISO 10896 is not applicable to the following:

- a) rough terrain variable-reach trucks covered by ISO 10896-1 (non-slewing);
- b) industrial variable-reach trucks covered by ISO 3691-2;
- c) mobile cranes;
- d) machines designed primarily for earth-moving, such as loaders, even if their buckets are replaced by fork arms (see ISO 20474);
- e) trucks designed primarily with variable-length load suspension elements (e.g. chain, ropes) from which the load may swing freely in all directions;

NOTE Additional requirements for trucks intended for freely swinging load applications, their lifting devices and attachments, and personnel/work platform applications on trucks, are being developed by ISO/TC 110/SC4.

- f) trucks designed primarily for container handling.

The significant hazards covered by this part of ISO 10896 are listed in [Annex A](#). This part of ISO 10896 does not address hazards that can occur

- during manufacture,
- when handling suspended loads, which may swing freely,
- when lifting personnel,
- when using trucks on public roads,
- when operating in potentially explosive atmospheres, or
- with a battery, LPG or hybrid as the primary power source.

## 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 2328, *Fork-lift trucks — Hook-on type fork arms and fork arm carriages — Mounting dimensions*

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

ISO 2867:2011, *Earth-moving machinery — Access systems*

ISO 3449, *Earth-moving machinery — Falling-object protective structures — Laboratory tests and performance requirements*

ISO 3457, *Earth-moving machinery — Guards — Definitions and requirements*

ISO 3471:2008, *Earth-moving machinery — Roll-over protective structures — Laboratory tests and performance requirements*

ISO 3795, *Road vehicles, and tractors and machinery for agriculture and forestry — Determination of burning behaviour of interior materials*

ISO 4413, *Hydraulic fluid power — General rules and safety requirements for systems and their components*

ISO 5053-1, *Powered industrial trucks — Terminology and classification — Part 1: Types of industrial trucks*

ISO 5353, *Earth-moving machinery, and tractors and machinery for agriculture and forestry — Seat index point*

ISO 6292, *Powered industrial trucks and tractors — Brake performance and component strength*

ISO 6682, *Earth-moving machinery — Zones of comfort and reach for controls*

ISO 6683, *Earth-moving machinery — Seat belts and seat belt anchorages — Performance requirements and tests*

ISO 7000<sup>1)</sup>, *Graphical symbols for use on equipment — Registered symbols*

ISO 7096, *Earth-moving machinery — Laboratory evaluation of operator seat vibration*

ISO 9244, *Earth-moving machinery — Machinery safety labels — General principles*

ISO 9533, *Earth-moving machinery — Machine-mounted audible travel alarms and forward horns — Test methods and performance criteria*

ISO 10263-3, *Earth-moving machinery — Operator enclosure environment — Part 3: Pressurization test method*

ISO 10263-4, *Earth-moving machinery — Operator enclosure environment — Part 4: Heating, ventilating and air conditioning (HVAC) test method and performance*

ISO 11112, *Earth-moving machinery — Operator's seat — Dimensions and requirements*

ISO 12508, *Earth-moving machinery — Operator station and maintenance areas — Bluntness of edges*

ISO 13284, *Fork-lift trucks — Fork-arm extensions and telescopic fork arms — Technical characteristics and strength requirements*

ISO 13732-1, *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces*

1) The database on Graphical Symbols for Use on Equipment contains the complete set of graphical symbols included in IEC 60417 and ISO 7000: <http://www.graphical-symbols.info/>.

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

ISO 13850, *Safety of machinery — Emergency stop — Principles for design*

ISO 13857, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs*

ISO 15817, *Earth-moving machinery — Safety requirements for remote operator control*

ISO 15870, *Powered industrial trucks — Safety signs and hazard pictorials — General principles*

ISO 16528-1, *Boilers and pressure vessels — Part 1: Performance requirements*

ISO 16528-2, *Boilers and pressure vessels — Part 2: Procedures for fulfilling the requirements of ISO 16528-1*

ISO 21507, *Earth-moving machinery — Performance requirements for non-metallic fuel tanks*

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*

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*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

### 3 Terms and definitions

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

#### 3.1

##### **rough-terrain variable-reach truck**

variable-reach truck intended primarily for operation on unimproved natural terrain and on the disturbed terrain of, for example, construction sites

[SOURCE: ISO 5053-1:2015, 3.21]

#### 3.2

##### **slewing rough-terrain variable-reach truck**

*rough-terrain variable-reach truck* (3.1) with an upper structure which can rotate around a vertical axis of the chassis in a circular motion greater than 5° either side of the longitudinal axis of the truck

[SOURCE: ISO 5053-1:2015, 3.22]

#### 3.3

##### **actual capacity**

maximum load, established by the manufacturer based on component strength and truck stability, that the truck can carry, lift, and stack to a specified height, at a specified load centre distance and reach, in normal operating conditions

Note 1 to entry: The actual capacity depends on the configuration of the truck in terms of such variables as the following:

- lift height;
- reach of the boom (measured from the centre of slewing of the rotating upper structure);
- slewing position;
- actual load centre;