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BSI Standards Publication

Rough-terrain trucks — User requirements

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

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National foreword

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Rough-terrain trucks — User requirements —

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

Chariots tout-terrain — Exigences pour l'utilisateur —

Partie 4: Exigences supplémentaires pour les chariots à portée variable manipulant librement des charges suspendues

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Foreword

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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).

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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 11525 consists of the following parts, under the general title *Rough-terrain trucks — User requirements*:

— *Part 1: General requirements*

— *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*

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Introduction

Slewing and non-slewing variable-reach rough-terrain trucks, when permitted, may be fitted with attachments that can lift and move freely suspended loads.

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INTERNATIONAL STANDARD ISO 11525-4:2016(E)

Rough-terrain trucks — User requirements —

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

1 Scope

This part of ISO 11525, when used in conjunction with ISO 11525-1 or ISO 11525-2, defines specific user requirements relating to the use of non-slewing and slewing variable-reach trucks operating with freely suspended loads.

When provisions of this part of ISO 11525 are different from those which are stated in ISO 11525-1 or ISO 11525-2, the provisions of this part of ISO 11525 take precedence over the provisions of ISO 11525-1 or ISO 11525-2.

It is intended to achieve the following:

a) prevention of personal injuries, property damage and accidents;

b) establishment of criteria for inspection, maintenance, operation and training.

NOTE National or local requirements can apply, whichever could be more stringent.

General user requirements for non-slewing variable-reach trucks are given in ISO 11525-1.

General user requirements for slewing variable-reach trucks are given in ISO 11525-2.

This part of ISO 11525 is not applicable to flexible intermediate bulk containers as defined in ISO 21898.

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 10896-4, *Rough-terrain trucks — Safety requirements and verification — Part 4: Additional requirements for variable-reach trucks handling freely suspended loads*

ISO 11525-1:2012, *Rough-terrain trucks — User requirements — Part 1: General requirements*

ISO 11525-2:2015, *Rough-terrain trucks — User requirements — Part 2: Slewing variable-reach trucks*

ISO 16715, *Cranes — Hand signals used with cranes*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10896-4, ISO 11525-1 and ISO 11525-2, and the following apply.

3.1
fall zone
area below an elevated or suspended load or the attachment

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4 Safety requirements

4.1 Principles

The safety requirements of this part of ISO 11525, along with the general safety requirements of ISO 11525-1 or ISO 11525-2, shall be supplemented by good management practices, safety controls and application of sound principles of safety, training, inspection, maintenance, application selection and operation. All data available regarding the parameters of intended use and expected environment shall be considered. Those with direct control over the application and operation of the truck shall be responsible for ensuring good safety practices.

NOTE 1 Different operating conditions can require additional safety precautions, training, and special safe operating procedures.

NOTE 2 In some local, regional, national markets, the operator might be required to undergo additional training beyond the scope of this part of ISO 11525.

4.2 Operator's manual

The user shall ensure that the operator's manual and any additional safety manuals provided by the manufacturer with the truck are always available to the operator and maintenance personnel.

The user and/or the operator shall refer to the responsible entity should questions on either the use of the truck, the handling of freely suspended loads or the interpretation of the operator's manual arise.

4.3 Modifications or alterations

The requirements of ISO 11525-1 or ISO 11525-2 shall apply.

4.4 Manufacturer's bulletins

The requirements of ISO 11525-1 or ISO 11525-2 shall apply.

4.5 Operator qualifications

The requirements of ISO 11525-1 or ISO 11525-2 shall apply.

Users shall ensure that operators receive the necessary level of training as required.

4.6 Operator's responsibility for training

Before operating a truck with a freely suspended load, the operator shall ensure that he/she has been trained in accordance with the training requirements of ISO 11525-1 or ISO 11525-2 along with the additional training requirements in this part of ISO 11525.

4.7 Operator training

Operators shall be trained in accordance with the training requirements of ISO 11525-1 or ISO 11525-2 along with the additional training requirements in 4.7.1.

4.7.1 Additional training for handling freely suspended loads

Training on the handling of freely suspended loads shall, as a minimum, include the following:

a) how handling and travelling with a freely suspended load affects the trucks stability, e.g. operation on slopes, fast and sudden movements;

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b) how to minimize the hazards associated with the movement of the freely suspended load during handling and travelling, e.g. tethering, boom position, gradual boom movements, slow travel speed;

c) potential hazards around a freely suspended load, e.g. collisions, crushing, falling objects;

d) unapproved applications for freely suspended loads, e.g. lifting of personnel;

e) any additional training requirements outlined by the truck manufacturer or local, state, federal, national standards and regulations, e.g. signalling, rigging/slinging.

4.7.2 Testing, retraining and enforcement

4.7.2.1 Testing

In addition to the testing requirements in ISO 11525-1 or ISO 11525-2, the operator shall be tested on handling of a freely suspended load including load pickup and placement.

4.7.2.2 Retraining

Operators shall be retrained in accordance with the requirements of 4.7.2.1.

4.7.2.3 Record keeping

Records of the person(s) trained in the operation of the truck shall be retained in accordance with the requirements of ISO 11525-1 or ISO 11525-2.

4.8 Inspection and maintenance

The inspection and maintenance requirements of ISO 11525-1 or ISO 11525-2 shall apply.

5 Operating safety rules and precautions

5.1 Operator's responsibility for safety

The operator is responsible for the safe operation of the truck in accordance with ISO 11525-1:2012, Clause 5 or ISO 11525-2:2015, Clause 5.

5.2 Travelling with a freely suspended load

In addition to the requirements of ISO 11525-1 or ISO 11525-2, the operator shall use tether/tag line(s) with trained personnel to control the freely suspended loads.

5.3 Picking and placing freely suspended loads

The operator shall:

a) before starting to pick or place a freely suspended load:

   1) know or determine the weight of the load including the weight of all riggings (e.g. slings, shackles) and the position of its load centre;

   2) verify the capacity of the surface before placing a load on it;

   3) ensure that the frame is levelled both longitudinally and laterally within the manufacturer's requirements before raising the boom or mast, with or without a load, and/or with the aid of an assistant;

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4) follow the manufacturer's instructions for operating stabilizer controls, if so equipped, as improper use of these controls could cause the truck to overturn;

5) identify the proper lifting points of the load, taking into consideration the centre of gravity and load stability;

6) never suspend loads using slings or chains directly from the forks or fork carriage unless approved by the manufacturer;

7) tether the freely suspended load to restrict unintended movement;

8) avoid lifting double tiered loads;

9) if the truck has a rotating hydraulic-powered fork carriage, verify that

   — the rotating fork carriage is reset to 0° rotation in all directions on its pivot axis prior to lifting a suspended load, and

   — the attachment will not rotate under load and vibration (e.g. pilot-operated check valves).

b) when picking or placing a freely suspended load:

1) the operator shall use alternative or additional means to safely lift the load, such as a qualified signal person when visibility is or could be obstructed near or at the load placement. The signal person shall

   — be in visual contact with the operator at all times and remain in constant communication (verbal or hand),

   — avoid crush hazards created by becoming positioned under a suspended load in between the suspended load and another object, and

   — when using hand signals, follow the requirements set forth in ISO 16715;

2) place freely suspended loads only on level even surfaces or surfaces designed to retain the loads;

3) only manoeuvre the truck in accordance with the operator's manual;

4) handle only stable and properly arranged loads;

5) operate with extra caution when handling off-centre freely suspended loads that cannot be centred;

6) do not exceed the actual capacity of the attachments, according to the appropriate load chart(s);

7) use special care when manoeuvring after placing a freely suspended load, because the risk of lateral overturning can be greater;

8) ensure that the attachment is reasonably horizontal and the truck is on a substantially firm smooth, level and stable surface;

9) when using stabilizing devices, ensure that the landing surface is firm and capable of supporting the truck and the freely suspended load;

10) do not operate the frame levelling feature, if fitted, when the boom is elevated above the position recommended by the manufacturer;

11) always properly tether freely suspended loads (e.g. guide ropes or tag lines) to restrict movement and to help control the freely suspended load and minimize any potential for rotation or swinging (see Figure 1 and Figure 2);

12) never lift freely suspended loads when wind speeds can cause an unsafe situation;

13) keep the freely suspended load as close to the ground as practicable;

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14) never drag or pull a freely suspended load;

15) only lift a freely suspended load vertically. Never pull or drag a freely suspended load horizontally as it could cause excessive stresses to the attachment or the truck and/or result in instability;

16) never attempt to use the truck frame-levelling to compensate for a freely suspended load or to adjust the freely suspended load after it has been raised;

17) never try to move fixed or obstructed freely suspended loads;

18) never leave the truck unattended with a freely suspended load;

19) never park the truck with a freely suspended load on a slope;

20) be sure that the freely suspended load is clear of any adjacent obstacles before lifting;

21) keep personnel and bystanders clear of the fall zone (see Figure 3);

22) never operate the truck while personnel or bystanders are within the fall zone (see Figure 3).

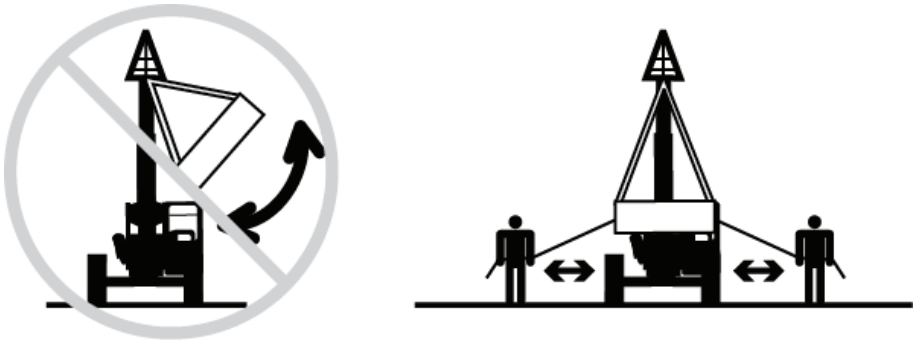

Figure 1 — Use of ropes or tag lines

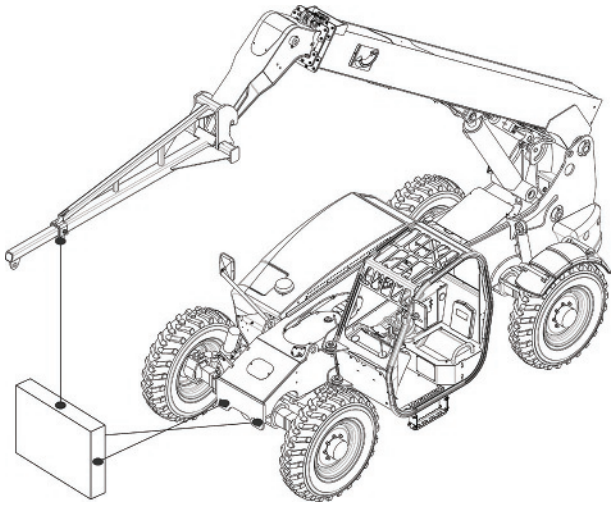

Figure 2 — Use of ropes or tag lines

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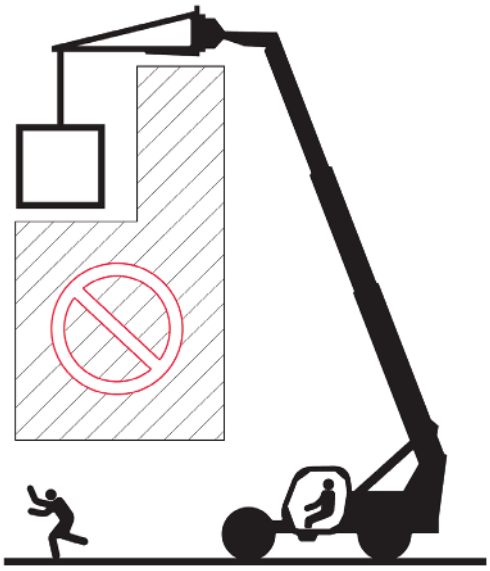

Figure 3 — Fall zone

5.4 Using attachments to handle freely suspended loads

When attachments are used to handle freely suspended loads, the operator shall:

a) ensure that the attachment is properly secured and all locking devices are engaged;

b) use care when securing, manipulating, positioning and transporting the freely suspended load;

c) operate a truck equipped with an attachment as a partially loaded truck when not handling a freely suspended load;

d) use extreme care when tilting the freely suspended load forward or rearward, particularly when stacking at height, and do not tilt forward with the load-handling means elevated, except to pick up or place a freely suspended load over a rack or stack;

e) ensure that load charts for the attachment being used are visible and legible.

5.5 Slinger/rigger requirements

The materials shall be rigged by a competent slinger/rigger.

When employees are engaged in hooking, unhooking, or guiding the load, or in the initial connection of a load to a component or structure and are within the fall zone, all of the following criteria shall be met:

— the materials being hoisted shall be rigged to prevent unintentional displacement;

— hooks with self-closing latches or their equivalent shall be used.

NOTE Exception: “J” hooks are permitted to be used for setting wooden trusses.

Before rigging a freely suspended load, the slinger/rigger shall:

a) know or determine the weight of the load and confirm with the operator that it does not exceed the actual capacity of the truck and attachment combination;

b) know or determine the freely suspended load’s centre of gravity and its stability;

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c) identify proper lifting points;

d) identify and ensure rigging is adequate to carry load based on configuration of rigging, e.g. single line or other;

e) ensure freely suspended load is stable and properly arranged. Do not freely suspend a top heavy load;

f) use short rigging to minimize a freely suspended load swinging that will allow lower boom angles;

g) use multiple line rigging if appropriate to help control and stabilize the load when freely suspended and while placing the freely suspended load.

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Bibliography

[1] ISO 18479-2, *Rough-terrain trucks — Non-integrated personnel work platforms — Part 2: User requirements*

[2] ISO 21898, *Packaging — Flexible intermediate bulk containers (FIBCs) for non-dangerous goods*

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