SLOVENSKI STANDARD
oSIST prEN ISO 18063-2:2019

01-december-2019

Vozila za talni transport - Terenska vozila - Metode za preskušanje vidnega polja in njihovo preverjanje - 2. del: Vozila z vrtljivim mehanizmom (ISO/DIS 18063-2:2019)

Rough-terrain trucks - Visibility test methods and their verification - Part 2: Slewing trucks (ISO/DIS 18063-2: 2019)

Geländegängige Flurförderzeuge - Prüfungen der Sichtverhältnisse und deren Verifikation - Teil 2: Drehbare Flurförderzeuge mit veränderlicher Reichweite (ISO/DIS 18063-2:2019)

Chariots tout-terrain - Méthodes d'essai de la visibilité et leur vérification - Partie 2: Chariots rotatifs (ISO/DIS 18063-2: 2019)

Ta slovenski standard je istoveten z: **prEN ISO 18063-2**

ICS:

53.060	Industrijski tovornjaki	Industrial trucks

oSIST prEN ISO 18063-2:2019 **en,fr,de**

DRAFT INTERNATIONAL STANDARD

ISO/DIS 18063-2

ISO/TC **110**/SC **4** Secretariat: **AFNOR**

Voting begins on: **2019-10-07**

Voting terminates on: **2019-12-30**

Rough-terrain trucks — Visibility test methods and their verification —

Part 2: Slewing trucks

Chariots tout-terrain — Méthodes d'essai de la visibilité et leur vérification —

Partie 2: Chariots rotatifs à portée variable

ICS: 53.060

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING

Reference number
ISO/DIS 18063-2:2019(E)

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Published in Switzerland

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European foreword

This document (prEN ISO 18063-2:2018) has been prepared by Technical Committee CEN/TC 150 “Industrial Trucks - Safety”, the secretariat of which is held by BSI.

This document is a working document.

Introduction

This European Standard is a type-C standard as stated in EN ISO 12100.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this standard.

Acknowledging that, at the time of publication, the requirements included in this standard do not represent the state of the art, a transition period of 24 months is permitted after the date of publication, such that manufacturers can develop their products sufficiently to meet the requirements of this standard.

Where there are provisions of this type-C standard which are different from those which are stated in type A or B standards, the provisions of this type-C standard take precedence over the provisions of the other standards, but only for machines that have been designed and built in accordance with the provisions of this type-C standard.

For relationship with EC Directive(s), see informative Annex ZA which is integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

The purpose of this standard is to address the operator's visibility in such a manner that the operator can see around the slewing rough-terrain variable-reach truck to enable proper, effective and safe operation that can be quantified in objective engineering terms. This standard includes a test method that uses two lights placed at the location of the operator's eyes. The maskings due to the truck, its components and attachments and a standard test load are determined around the truck, starting at a boundary line 1 m away from the smallest rectangle that encompasses the truck out to the visibility test circle. The radius of the circle is 12 m. The method used does not capture all of the aspects of the operator's visibility, but provides information to assist in determining the acceptability of visibility from the truck. Criteria are included in this standard to provide guidance for designers as to the extent of visibility maskings that are acceptable.

Due to the truck capability and the intended operation mode of the truck, the test method is divided into 4 tests representing the main utilisation:

— driving between 2 work sites, at high speed: visibility is check in the front sector of the 12m boundary. Crab steering and 4-wheel steering are not permitted at high speed, so there is no need to check visibility of sides of the truck, neither at the rear-side;

— pick-and-carry: manoeuvring and slewing at low speed on work site, with possible crab or 4-wheel steering, in both forward and backward direction. The risk is then in close proximity of the truck and visibility is checked at 1m rectangular boundary all around the truck;

— pick-and-place: slewing the upper structure at low speed, the truck being on stabilisers (if any) in static position. The risk is in close proximity of the boom and/or the tail. The test could be performed in any position of the upper structure, and this standard will consider the worst case, i.e. when in forward aligned position. Therefore, visibility is checked at 1m rectangular boundary;

— on forks: the market is now offering trucks with long reach (up to 40 m and more). Visibility to the forks is then of high importance to ensure visibility to the overall front size of the machine.

For the eye spacing adjustments (up to the limits specified in Tables 1 and 2) can be made considering that the operator has the capability to turn the head and move the body torso side to side. The eye spacings used are less than the maximum permitted values based on the ergonomics of the operator. This is done to maintain the current state-of-the-art of trucks.

Standard test loads are carried on devices on the truck during the visibility tests. They are intended to be dimensionally representative of typical loads carried by variable-reach slewing trucks and are used to determine their masking effects and to define representative boom geometry of the truck in normal uses.

The established visibility performance criteria are based on the physical aspects of the human operators and ground personnel using various representative dimensions and the design of trucks that have provided acceptable visibility. To establish the visibility criteria, a combination of the eye spacings and masking widths are used. Multiple maskings in sectors are acceptable where there is adequate spacing between the individual maskings. Where the direct visibility is considered inadequate, additional devices for indirect visibility [mirrors or closed circuit television cameras (CCTV)], can be used to achieve acceptable visibility. For the rectangular 1 m boundary (RB) additional devices for indirect visibility (mirrors or CCTV) are preferred. Other aids (see ISO 16001) can be used exceptionally.

ISO 18063 consists of the following parts, under the general title Rough-terrain trucks — Visibility test methods and their verification:

— ISO 18063-1: Variable-reach trucks

— EN ISO 18063-2: Slewing variable-reach trucks

Rough-terrain trucks — Visibility test methods and their verification —

Part 2: Slewing trucks

1 Scope

This standard applies to rough-terrain slewing variable-reach trucks (herein-after referred to as 'trucks') as defined in ISO 10896-2 that have a specific seated operator's position, on the left hand side of the boom, or centre position (excluding operator position on the right side of the boom).

This standard specifies a static test method for determining and evaluating the operator's visibility on a rectangular 1 m boundary close around the slewing rough-terrain variable-reach truck and on a 12 m visibility test circle. Performance requirements for visibility are specified in this standard.

It applies to trucks for operation on work sites.

2 Normative references

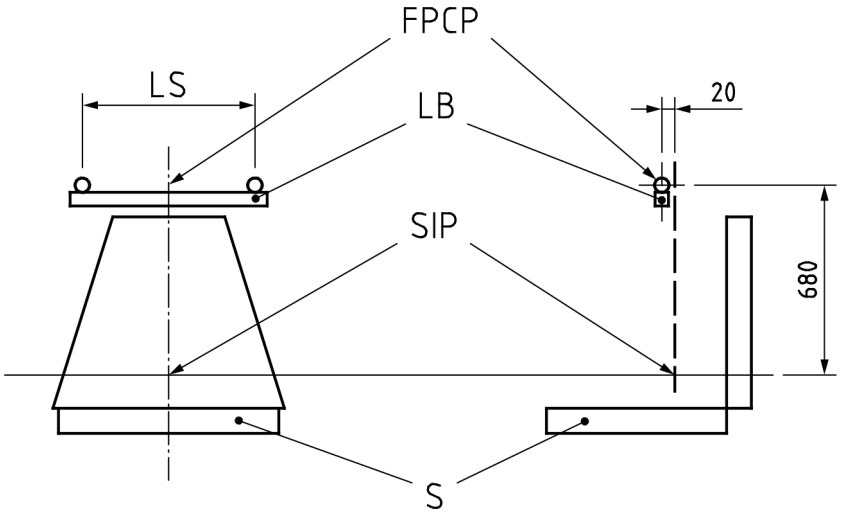
The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

3 Terms and definitions

For the purposes of this Standard, the definitions stated in EN ISO 12100, ISO 10896-2 and the following apply.

3.1
test surface
area of compacted earth or firm surface that forms the ground reference plane for the visibility measurements, with a gradient of no more than 3 % in any direction

3.2
filament position centre-point (FPCP)
centre at the midpoint of the line between the light-bulb filaments, located 680 mm above and 20 mm in front of the seat index point (SIP) as described in ISO 5353 (see Figure 1)



Key

LB light bar
LS light bulb spacing
SIP seat index point
S seat
FPCP filament position centre point
Dimensions in millimeters

Figure 1 — Light source apparatus

3.3 Visibility-test locations

3.3.1
visibility test circle (VTC)
circle with 12 m radius located on the ground reference plane with its centre vertically below the filament position centre point (see Figure 2)

3.3.2
rectangular 1 m boundary (RB)
line on the ground reference plane located at 1 m distance from the outside machine rectangular boundary (see Figure 6), the truck being on wheels with stabilizers fully retracted and the upper structure in front aligned position

3.3.3
sector A
segment of the visibility test surface to the front of the truck, defined by a 9,5 m chord length for the 12 m radius that is perpendicular to the longitudinal plane passing through the filament position centre point with the chord length bisected by the longitudinal plane (see Figure 2)