



SLOVENSKI STANDARD
oSIST prEN 16842-4:2017

01-september-2017

Vozila za talni transport - Gnana vozila za talni transport - Vidno polje voznika - Preskusna metoda za preverjanje - 4. del: Industrijsko spremenljiva tovorna vozila z zmogljivostjo do vključno 10 000 kg

Powered industrial trucks- Visibility - Test methods and verification - Part 4 : Industrial variable reach trucks up to and including 10 000 kg capacity

Kraftbetriebene Flurförderzeuge - Sichtverhältnisse - Testmethoden zur Verifikation - Teil 4: Flurförderzeuge mit veränderlicher Reichweite bis zu und einschließlich einer Nenntragfähigkeit von 10 000 kg

Chariots de manutention automoteurs - Visibilité - Méthodes d'essai et vérification - Partie 4 : Chariots de manutention à portée variable ayant une capacité allant jusqu'à 10 000 kg inclus

Ta slovenski standard je istoveten z: prEN 16842-4

ICS:

53.060 Industrijski tovornjaki Industrial trucks

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EUROPEAN STANDARD
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English Version

Powered industrial trucks- Visibility - Test methods and verification - Part 4 : Industrial variable reach trucks up to and including 10 000 kg capacity

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This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 150.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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SIST EN 16842-4:2019

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European foreword

This document (prEN 16842-4:2017) has been prepared by Technical Committee CEN/TC 150 "Industrial trucks - Safety", the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

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

The EN 16842 series consists of the following parts under the general title *Powered industrial trucks – Visibility – Test methods for verification*:

- *Part 1: General requirements;*
- *Part 2: Sit-on counterbalance trucks and rough terrain masted trucks up to and including 10 000 kg capacity;*
- *Part 3: Reach trucks up to and including 10 000 kg capacity (in preparation);*
- *Part 4: Variable reach industrial trucks up to and including 10 000 kg capacity;*
- *Part 5: Variable reach industrial trucks greater than 10 000 kg capacity (in preparation);*
- *Part 6: Sit-on counterbalance trucks and rough terrain masted trucks greater than 10 000 kg capacity (in preparation);*
- *Part 7: Variable reach and masted container handler (in preparation);*
- *Part 8: Stand on counterbalance trucks up to and including 10 000 kg capacity (in preparation);*
- *Part 9: VNA trucks.*

It is intended to develop additional parts related to the following machinery:

- Pallet stacking trucks (rider controlled);
- Burden and personnel carrier;
- Tractor (IND Truck);
- Single side loader;
- Multi-directional forklift truck;
- Articulated counterbalance lift truck;
- Low lift straddle carriers (as defined in ISO 5053-1:2015, 3.18);
- High lift straddle carriers (as defined in ISO 5053-1:2015, 3.19).

Introduction

This document is a type-C standard as stated in EN 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 organizations, 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 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 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.

1 Scope

This European Standard specifies the requirements and test procedures of 360° visibility of sit-on self-propelled variable reach industrial counterbalance trucks (herein after referred to as truck) with a capacity $\leq 10\,000$ kg in accordance with ISO 5053-1 and is intended be used in conjunction with FprEN 16842-1.

Where specific requirements in this part are modified from the general requirements in FprEN 16842-1, the requirements of this part are truck specific and to be used for self-propelled industrial order-picking, lateral- and front-stacking trucks with elevating operator position.

This part of EN 16842 deals with all significant hazards, hazardous situations or hazardous events as listed in Annex ZA, Table ZA.1, relevant to the visibility of the operator for applicable machines when used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer.

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.

FprEN 16842-1, *Powered industrial trucks — Visibility — Test methods and verification — Part 1: General requirements*

EN ISO 3691-1:2015, *Industrial trucks — Safety requirements and verification — Part 1: Self-propelled industrial trucks, other than driverless trucks, variable-reach trucks and burden-carrier trucks (ISO 3691-1:2011, including Cor 1:2013)*

EN ISO 3691-2, *Industrial trucks — Safety requirements and verification — Part 2: Self-propelled variable-reach trucks (ISO 3691-2)*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in FprEN 16842-1, ISO 5053-1 and EN ISO 3691-2 apply.

4 Truck configuration

4.1 General

For truck test configuration, see FprEN 16842-1:2017 4.2, 4.3 and 4.4.

4.2 Fork arm dimensions

The test truck shall be equipped with fork arms of the following nominal lengths:

- Truck $< 1\,000$ kg rated capacity; 800 mm,
- Truck $\geq 1\,000$ kg and $< 5\,000$ kg rated capacity; 1 000 mm, and
- Truck $\geq 5\,000$ kg and $\leq 10\,000$ kg rated capacity; 1 200 mm.

prEN 16842-4:2017 (E)

Other fork arm lengths may be tested if these adversely affect visibility or as specified by the manufacturer.

Lengths of forks arms shall be noted in the test report as per FprEN 16842-1:2017, 9.2 i).

NOTE Fork arm lengths in millimetres are given as two times the length of the standard load centre distance as defined in EN ISO 3691-1:2015, A.2.3.

5 Test equipment

Requirements for test equipment are specified in FprEN 16842-1:2017, Clause 5.

6 Test procedures (direct visibility)

6.1 Light source position

6.1.1 General

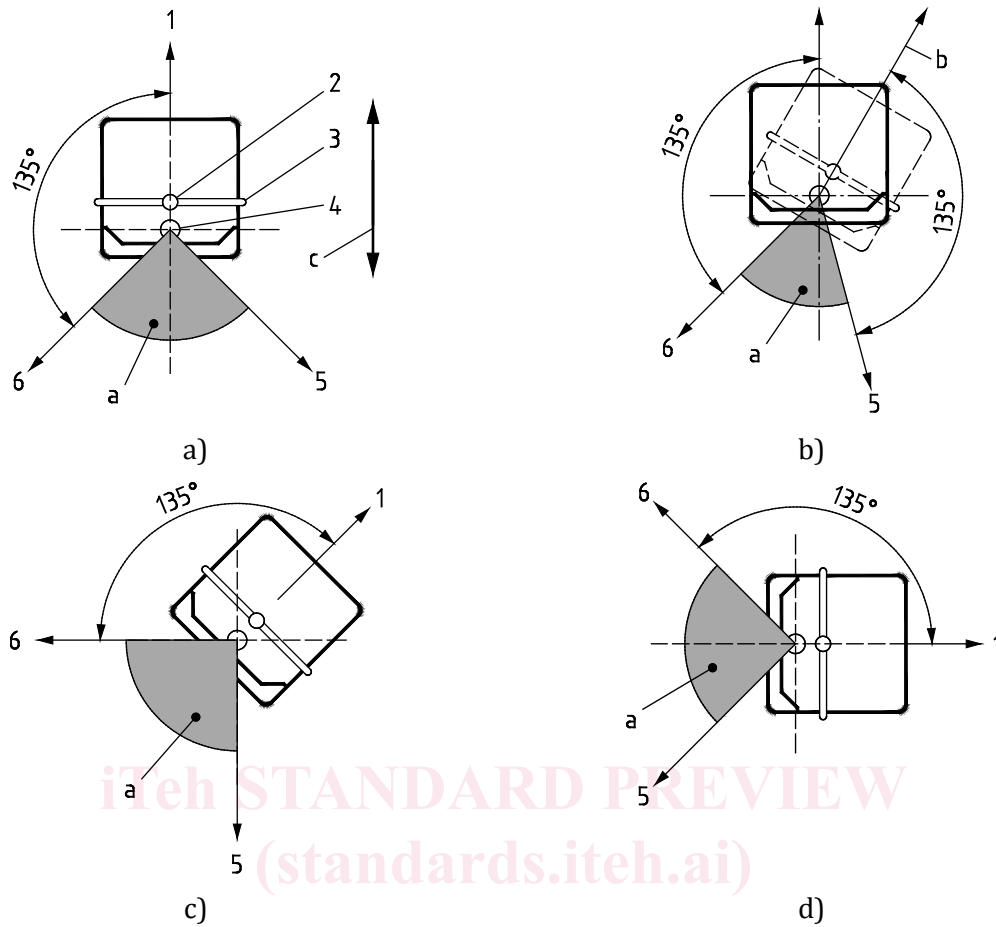
The visibility from the truck shall be determined from the operating position with light sources and a test body or screen. The light sources simulate the range of eye positions of the operator. The test body simulates an obstacle to be seen.

6.1.2 Sit-on operator

The light source fixture shall be positioned relative to the seat index point (SIP). The seat shall be placed at the closest adjustment position to the mid-point of horizontal and vertical adjustment and the mid-point of the suspension height, if so equipped. For trucks with rotatable seats, the seat may be turned toward the direction of the test being conducted. See Figure 1.

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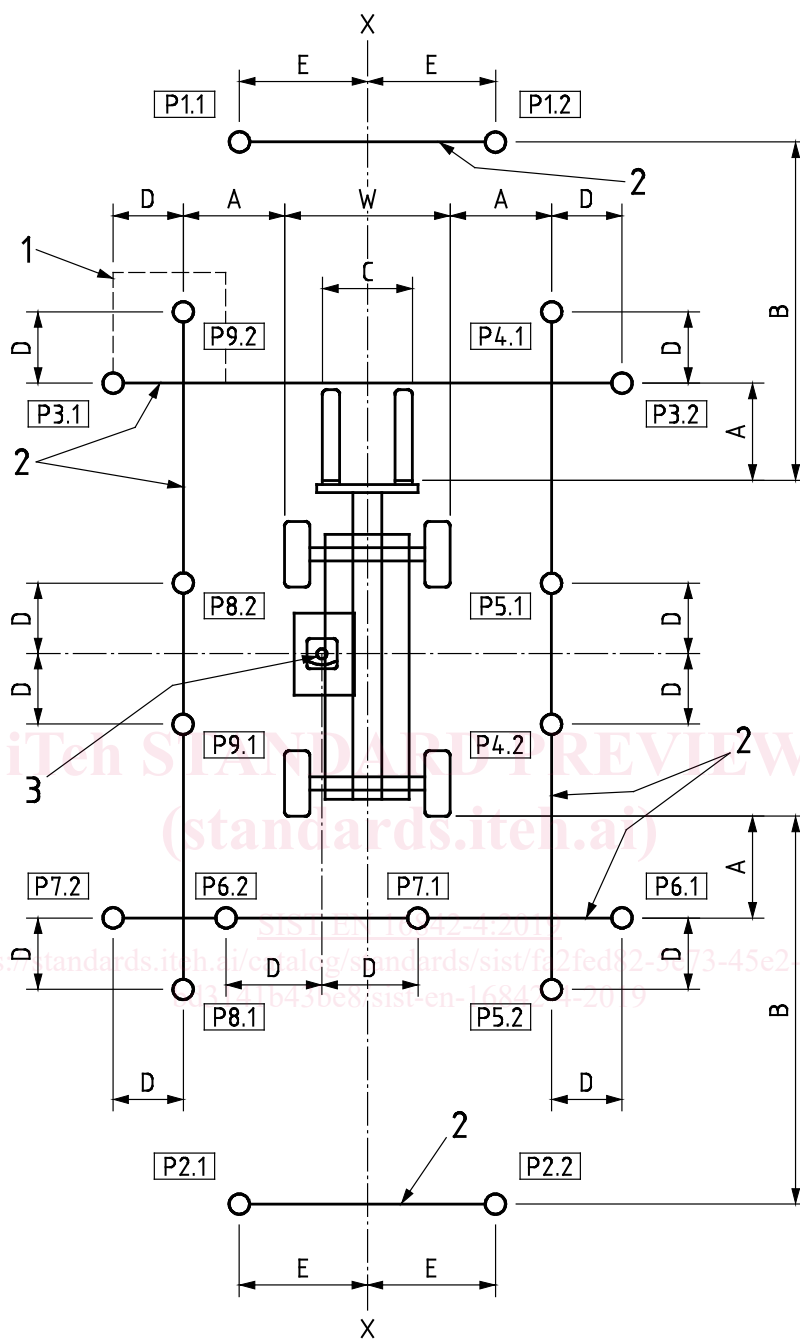
**Key**

- 1 0° seat direction
- 2 SIP
- 3 row of lights
- 4 row of lights axis of rotation
- 5 +135° test direction
- 6 -135° test direction
- a the row of lights cannot be turned to this area for tests
- b seat direction rotatable
- c forward and rearward truck direction for all seat positions shown

Figure 1 — Seat position and test direction**6.2 Test paths**

Test paths P1 to P9 (see Figure 2) shall consist of lines laid out on the floor around the test truck, parallel and perpendicular to the truck longitudinal axis. The test path shall be located from the truck profile which includes the front vertical surface of the fork arms.

All dimensions in millimetres



Key

- | | | |
|------------------|----|----------------------------|
| A = 500 | XX | longitudinal axis of truck |
| B = 4 000 | W | maximum truck width |
| C = 800 to 1 000 | 1 | test body |
| D = 250 | 2 | test path |
| E = $W/2 + 500$ | 3 | axis of rotation |

Figure 2 — Test paths, industrial variable reach truck $\leq 10\ 000$