



SLOVENSKI STANDARD
SIST EN 16842-10:2020

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Vozila za talni transport - Gnana vozila za talni transport - Vidno polje voznika - Preskusna metoda in preverjanje - 10. del: Vlačilci in vlečni traktorji ter tovorna vozila

Powered industrial trucks - Visibility - test methods and verification - Part 10: Towing and Pushing tractors and Burden carrier

Kraftbetriebene Flurförderzeuge - Sichtverhältnisse - Prüfverfahren und Verifikation - Teil 10: Schlepper und Schubschlepper und Lastentransportfahrzeuge

Chariots de manutention automoteurs - Visibilité - Méthodes d'essai et vérification - Partie 10 : Tracteur, pousseur et transporteur de charge

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ICS:

53.060 Industrijski tovornjaki Industrial trucks

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EUROPEAN STANDARD

EN 16842-10

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2020

ICS 53.060

English Version

Powered industrial trucks - Visibility - Test methods and verification - Part 10: Towing and Pushing tractors and Burden carrier

Chariots de manutention automoteurs - Visibilité -
Méthodes d'essai et vérification - Partie 10 : Tracteur,
pousseur et transporteur de charge

Kraftbetriebene Flurförderzeuge - Sichtverhältnisse -
Prüfverfahren und Verifikation - Teil 10: Schlepper und
Schubschlepper und Lastentransportfahrzeuge

This European Standard was approved by CEN on 5 July 2020.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

iTeh STANDARD PREVIEW

This European Standard exists 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.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 16842-10:2020) has been prepared by Technical Committee CEN/TC 150 "Industrial Trucks - Safety", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2021, and conflicting national standards shall be withdrawn at the latest by February 2021.

This document is intended to be used in combination with the requirements in EN 16842-1.

EN 16842 consists of the following parts under the general title *Powered industrial trucks – Visibility – Test methods and 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;*
- *Part 4: Industrial variable-reach trucks up to and including 10 000 kg capacity;*
- *Part 5: Industrial variable-reach trucks greater than 10 000 kg capacity;*
- *Part 6: Sit-on counterbalance trucks and rough terrain masted trucks greater than 10 000 kg capacity;*
- *Part 7: Variable-reach and masted container trucks handling freight containers of 6 m (20 ft) length and longer;*
- *Part 8: Stand-on counterbalance trucks up to and including 10 000 kg capacity;*
- *Part 9: Order-picking, lateral- and front-stacking trucks with elevating operator position;*
- *Part 10: Towing and Pushing tractors and Burden carrier.*

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

- Pallet-stacking trucks (rider controlled);
- Single side loader;
- Multi-directional forklift truck;
- Articulated counterbalance lift truck;
- Non-Stacking low-lift straddle carriers (as defined in ISO 5053-1:2020, 3.18);
- Stacking high-lift straddle carriers (as defined in ISO 5053-1:2020, 3.19).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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

EN 16842-10:2020 (E)**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 document specifies the requirements and test procedures for 360° visibility of sit-on and stand-on self-propelled

- towing and pushing tractors in accordance with ISO 5053-1:2020, 3.1 and 3.2 without load and without trailer;
- burden carriers in accordance with ISO 5053-1:2020, 3.25 without load; and
- baggage and equipment tractors with driver's accommodation in accordance with EN 12312-15, without load and without trailer

(herein after referred to as trucks) and is intended to be used in conjunction with EN 16842-1.

Where specific requirements in this part are modified from the general requirements in EN 16842-1, the requirements of this part are truck specific and are used for sit-on and stand-on self-propelled Towing and Pushing tractors and Burden carriers.

This part of EN 16842 deals with all significant hazards, hazardous situations or hazardous events 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.

This document does not apply to personnel carriers in accordance with ISO 5053-1:2020, 3.25.

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.

EN 12312-15, *Aircraft ground support equipment - Specific requirements - Part 15: Baggage and equipment tractors*

EN 16842-1:2018, *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 3691-6:2015, *Industrial trucks - Safety requirements and verification - Part 6: Burden and personnel carriers (ISO 3691-6:2013)*

ISO 5053-1:2020, *Industrial trucks - Vocabulary - Part 1: Types of industrial trucks*

EN ISO 5353, *Earth-moving machinery, and tractors and machinery for agriculture and forestry - Seat index point (ISO 5353:1995)*

EN 16842-10:2020 (E)**3 Terms and definitions**

For the purposes of this document, the terms and definitions given in EN 16842-1:2018 and ISO 5053-1:2020, and the following apply.

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

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

NOTE Definition 3.1 of EN 16842-1:2018 is not applicable for trucks covered by this part.

3.1 truck profile

contour which is determined by the largest width and length parallel or rectangular to the longitudinal axis of the truck

Note 1 to entry: Excludes external projections such as, mirrors or coupling.

Note 2 to entry: For width dimension, see Figure 3, key *W*.

4 Truck configuration

EN 16842-1:2018, Clause 4 does not apply.

The test shall be conducted with an unladen truck on a level, horizontal floor. The truck shall be equipped with:

- coupling means, [SIST EN 16842-10:2020](https://standards.iteh.ai/catalog/standards/sist/dece8d96-9a1e-4ddb-863f-6cf595b0d60c/sist-en-16842-10-2020)
- a buffer plate at the front-end, <https://standards.iteh.ai/catalog/standards/sist/dece8d96-9a1e-4ddb-863f-6cf595b0d60c/sist-en-16842-10-2020>
- an open loading platform or closed loading structure, or
- combinations of these,

whichever is applicable.

The test method of this document applies to all truck configurations, including additional tests for various types of external fuel tanks, cabs, structures, etc. that adversely affect visibility.

The test shall be valid for the determined configuration of the truck and this shall be recorded in the test report, see Clause 8.

5 Test equipment

For test equipment, EN 16842-1:2018, Clause 5 shall apply.

6 Test procedures for direct visibility**6.1 General**

For trucks without any restriction of the visibility by cabs, structure or similar means (e.g. stand-on tractors without cab) no visibility test is needed. This shall be recorded in the test report, see Clause 8.

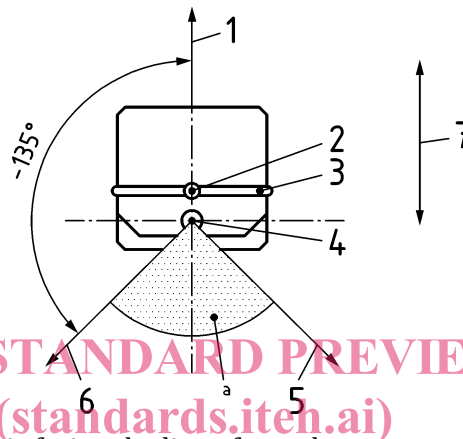
6.2 Lighting equipment position

6.2.1 General

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

6.2.2 Sit-on operated trucks

The lighting equipment shall be positioned relative to the seat index point (SIP) as specified in EN ISO 5353. 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.



Sit-on trucks where the operator is facing the line of travel.

Key

- | | | | |
|---|---------------------------|---|---|
| 1 | 0° seat direction | 5 | +135° test direction |
| 2 | SIP | 6 | -135° test direction |
| 3 | row of lights | 7 | forward and rearward truck direction for all seat positions shown |
| 4 | row of lights pivot point | | |
- a The row of lights shall not be turned to this area for tests.

Figure 1 — Seat position and test direction

6.2.3 Stand-on operated trucks

The lighting equipment shall be positioned relative to the standing index point (STIP).

The STIP is given for a stand-on operator in the normal operating position, with the operator standing at the platform and controlling all functions.

Procedure for locating the STIP:

- determine the appropriate foot positions for the truck being evaluated;
- determine the position of the ankle pivot point by the shoe outline and the data given in Figure 2;
- determine the mid-point of the line connecting the ankle pivot points to establish the STIP;