



SLOVENSKI STANDARD
SIST EN 1757-2:2002

01-maj-2002

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Safety of industrial trucks - Pedestrian propelled trucks - Part 2: Pallet trucks

Sicherheit von Flurförderzeugen - Handbetriebene Flurförderzeuge - Teil 2:
Handhubwagen

Sécurité des chariots de manutention - Chariots manuels - Partie 2: Transpalettes

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Ta slovenski standard je istoveten z: **EN 1757-2:2001**

ICS:

53.060 Industrijski tovornjaki Industrial trucks

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ICS 53.060

English version

Safety of industrial trucks - Pedestrian propelled trucks - Part 2: Pallet trucks

Sécurité des chariots de manutention - Chariots manuels -
Partie 2: Transpalettes

Sicherheit von Flurförderzeugen - Handbetriebene
Flurförderzeuge - Teil 2: Handhubwagen

This European Standard was approved by CEN on 19 April 2001.

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 Management Centre or to any CEN member.

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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard 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of an identical text or by endorsement, at the latest by November 2001, and conflicting national standards shall be withdrawn at the latest by November 2001.

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

For relationship with EC Directive(s), see informative Annex Z, which is an integral part of this standard.

This European Standard is one of a series of European Standards for the safety of Industrial trucks. This series of standards includes :

- | | |
|------------------|--|
| EN 1175 -1 | Safety of industrial trucks - Electrical requirements - Part 1 : General requirement for battery powered trucks |
| EN 1175-2 | Safety of industrial trucks - Electrical requirements - Part 2 : General requirements for internal combustion engine powered trucks |
| EN 1175-3 | Safety of industrial trucks - Electrical requirements - Part 3 : Specific requirements for the electrical power transmission systems of internal combustion engine powered trucks |
| EN 1459 | Safety of industrial trucks - Self-propelled variable reach trucks |
| EN 1525 | Safety of industrial trucks - Driverless trucks and their systems |
| EN 1526 | Safety of industrial trucks - Additional requirements for automated functions on trucks |
| EN 1551 | Safety of industrial trucks – Self propelled trucks over 10 000 kg capacity |
| EN 1726-1 | Safety of industrial trucks – Self-propelled trucks up to and including 10 000 kg capacity and industrial tractors with a draw bar pull up to and including 20 000 N - Part 1 : General requirements |
| EN 1726-2 | Safety of industrial trucks – Self-propelled trucks up to and including 10 000 kg capacity and industrial tractors with a draw bar pull up to and including 20 000 N - Part 2 : Additional requirements for trucks with elevating operator position and trucks specifically designed to travel with elevated loads |
| EN 1755 | Safety of industrial trucks - Operation in potentially explosive atmospheres – Use in flammable gas, vapour, mist and dust |
| EN 1757-1 | Safety of industrial trucks - Pedestrian propelled trucks - Part 1 : Stacker trucks |
| EN 1757-2 | Safety of industrial trucks - Pedestrian propelled trucks - Part 2 : Pallet trucks |
| prEN 1757-3:1997 | Safety of industrial trucks - Pedestrian propelled trucks - Part 3 : Platform trucks |
| prEN 1757-4:1997 | Safety of industrial trucks - Pedestrian propelled trucks - Part 4 : Scissor lift pallet trucks |
| prEN 12053:2000 | Safety of industrial trucks - Test methods for measuring noise emissions |
| EN 12895 | Industrial trucks - Electromagnetic compatibility |

prEN 13059:1997 Safety of industrial trucks - Test methods for measuring vibration

prEN ISO 13564:1996 Test methods for measuring visibility from self-propelled trucks (ISO/DIS 13564:1996)

Annex A is normative.

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

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Introduction

This standard has been prepared to be a harmonised standard to provide one means of conforming with the essential safety requirements of the Machinery Directive and associated EFTA Regulations.

This European standard is a type C standard as stated in EN 1070.

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

When provisions of this type C standard 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, for machines that have been designed and built according to the provisions of this type C standard.

With the aim of clarifying the intention of the standard and avoiding doubts when reading it, the following assumptions were made when producing it :

- only competent persons operate the machine
- components without specific requirements are designed in accordance with usual engineering practice and calculation code, including all failure modes.

1 Scope

1.1 This standard applies to pallet trucks as defined in 3.1 with lift heights up to 300 mm and rated capacities up to and including 2 000 kg, hereinafter referred to as "trucks".

1.2 Attachments, fixed or removable, which can be installed on the truck are not dealt with in this standard.

1.3 This standard deals with the technical requirements to minimise the hazards listed in clause 4 which can arise during commissioning, operation and maintenance of trucks when carried out in accordance with the specifications as intended by the manufacturer or his authorised representative.

In addition trucks shall comply, for the hazards not covered by this standard, with the applicable companion standards and as appropriate with EN 292.

1.4 This standard does not establish the additional requirements for :

- operation in severe conditions (e.g. extreme environmental conditions such as : freezer applications, high temperatures, corrosive environment, strong magnetic fields),
- operation subject to special rules (e.g. potentially explosive atmospheres),
- handling of loads the nature of which could lead to dangerous situations (e.g. molten metal, acids/alkalies, radiating materials, specially brittle loads),
- hazards occurring during construction, transportation, decommissioning and disposal,
- direct contact trucks with foodstuffs,
- operation on gradients or on surfaces other than smooth, level, hard surfaces,
- trucks with powered lifting.

1.5 Other possible limitations of the scope of other standards referred to that also apply to this standard.

1.6 Hazards relevant to noise, vibration, visibility and to static electricity are not dealt with in this standard.

1.7 This standard applies to trucks manufactured after the date of issue.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 292-2:1991	Safety of machinery - Basic concepts, general principles for design - Part 1 - Basic terminology, methodology
EN 292-2:1991	Safety of machinery - Basic concepts, general principles for design - Part 2 - Technical principles and specifications.
EN 1050:1996	Safety of machinery - Principles for risk assessment.
ISO 15870	Powered industrial trucks – Safety signs and hazard pictorials – General principles

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1 pallet truck

truck with wheels supported lifting fork arms for handling pallets

The pallet truck is designed to be manually pushed, pulled and steered, on a smooth, level, hard surface, by a pedestrian operator using an articulated tiller.

The pallet truck is designed to raise a load, by pumping the tiller, to a height sufficient for transporting.

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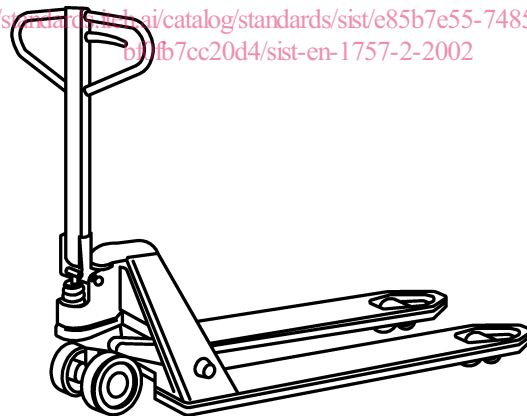


Figure 1 - Example of pallet truck

3.2

rated capacity

load in kilograms given by the manufacturer, the truck can raise and transport under intended operation

The rated capacity is defined for a load uniformly distributed and covering entirely the length and width of the fork arms, without going beyond the length.

The centre of gravity shall be on the centre line of the truck

3.3

intended operating position

position in which the operator may control all operational functions as intended by the manufacturer

3.4

intended operation

the use for which the truck is designed according to the manufacturer's handbook

3.5

operator

designated person, suitably trained (see EN ISO 9001,4.18) qualified by knowledge and practical experience, and provided with the necessary instructions to enable the required (operation, test and/or examination) to be carried out safely

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4 List of hazards

The following hazards from annex A of EN 1050:1996 are applicable in the situations described and could involve risks to persons if not reduced or eliminated. The corresponding requirements are designed to limit the risk or reduce these hazards in each situation.

Hazards		Corresponding requirements	
4.1	MECHANICAL HAZARDS		
4.1.1	Crushing	5.2	Propelling, steering
		5.3	Load handling controls
		5.4	Hydraulic system
		5.6	Parking brake
		5.7	Protection against crushing and shearing points
		7	Information for use
4.1.2	Shearing	5.7	Protection against crushing and shearing points
		5.8	Edges and angles
		7	Information for use
4.1.3	Impact	5.2	Propelling, steering
		5.8	Edges and angles
4.1.4	Friction or abrasion	5.2	Propelling, steering
4.1.5	High pressure fluid ejection	5.4.3	Pressure limitation
4.2	HAZARDS GENERATED BY NEGLECTING ERGONOMIC PRINCIPLES		
4.2.1	Unhealthy postures or excessive efforts	5.1	Design and construction forces for truck
		5.2	Propelling, steering
		5.3	Load handling controls
		5.4.1	Stroke and force limitation
		5.5	Pallet handling
		7	Information for use
4.2.2	Inadequate consideration of hand-arm or foot-leg anatomy	5.2	Propelling, steering
		5.3	Load handling controls
4.2.3	Neglected use of personal protection equipment	7	Information for use
4.2.4	Human error	7	Information for use
4.3	HAZARDS DUE TO FAILURES		
		5.4.1	Stroke and force limitation
		6.2.2	Structural test
		7	Information for use
4.4	ADDITIONAL HAZARDS DUE TO MOBILITY		
4.4.1	Insufficient ability of machinery to remain immobilised	5.6	Parking brake
		7	Information for use
4.4.2	Contact with the wheels	5.2	Propelling, steering
4.4.3	Impact hazard	5.8	Edges and angles
		7	Information for use

Hazards		Corresponding requirements	
4.5	ADDITIONAL HAZARDS DUE TO LIFTING		
4.5.1	Lack of stability	7	Information for use
4.5.2	Overload	5.4.3 7	Pressure limitation Information for use
4.5.3	Amplitude of movement	5.4.1	Stroke and force limitation
4.5.4	Falling of loads	7	Information for use
4.6	HAZARD COMBINATIONS		Covering each individual hazard is sufficient for covering combinations of hazards

5 Requirements

5.1 Design and construction forces for truck

The design and construction of the truck shall be such that the maximum forces required for truck function (propelling, lifting, steering) shall not exceed the values given in Table 1 below (see 6.2.3).

Table 1 - Maximum allowed forces

TEST LOAD kg	PROPELLING (standards.iteh.ai)		LIFTING N	STEERING N
	STARTING N	ROLLING N		
250	150	75	100	150
500	200	100	150	200
750	250	150	200	250
1 000	300	200	250	300
1 500	400	300	350	300
2 000	500	400	400	300

NOTE The values in Table 1 are pure design values for the truck and should not be confused with actual operating forces in the work place (see 7.1.3).

5.2 Propelling, steering

The tiller shall be provided with a handle of the closed loop type or otherwise designed to ensure lateral protection of the operator's hands.

The hand grips shall be of a cross section enclosed within the space between two concentric circles of 25 mm inside diameter and 35 mm outside diameter and provide a minimum span of 100 mm for each hand.

The upper part of the tiller handle shall conform to the dimensions shown in Figures 2 and 3.