BRITISH STANDARD

BS EN
1757-2:2001

Safety of industrial trucks — Pedestrian propelled trucks —

Part 2: Pallet trucks

The European Standard EN 1757-2:2001 has the status of a British Standard

ICS 53.060

National foreword

This British Standard is the official English language version of EN 1757-2:2001.

The UK participation in its preparation was entrusted to Technical Committee MHE/7, Industrial trucks — Safety, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled "International Standards Correspondence Index", or by using the "Find" facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

This British Standard, having been prepared under the direction of the Engineering Sector Committee, was published under the authority of the Standards Committee and comes into effect on 15 July 2001

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 19 and a back cover.

The BSI copyright date displayed in this document indicates when the document was last issued.

Amendments issued since publication

Amd. No.	Date	Comments

ISBN 0 580 37069 0

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1757-2

May 2001

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.

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

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

Ref. No. EN 1757-2:2001 E

Contents

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.

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/alcalies, 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.

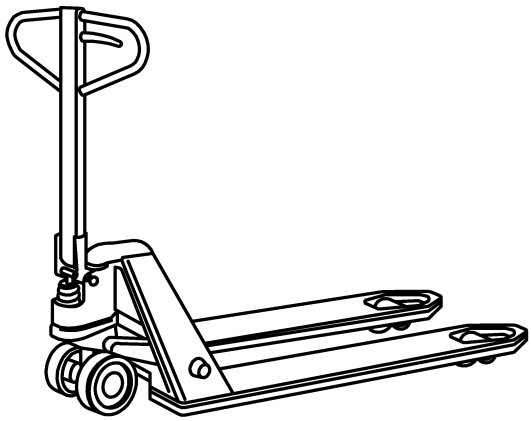


Figure 1 - Example of pallet truck

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

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 5.3 5.4 5.6 5.7 7	Propelling, steering Load handling controls Hydraulic system Parking brake Protection against crushing and shearing points Information for use
4.1.2	Shearing	5.7 5.8 7	Protection against crushing and shearing points Edges and angles Information for use
4.1.3	Impact	5.2 5.8	Propelling, steering 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 5.2 5.3 5.4.1 5.5 7	Design and construction forces for truck Propelling, steering Load handling controls Stroke and force limitation Pallet handling Information for use
4.2.2	Inadequate consideration of hand-arm or foot-leg anatomy	5.2 5.3	Propelling, steering 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 6.2.2 7	Stroke and force limitation Structural test Information for use
4.4	**ADDITIONAL HAZARDS DUE TO MOBILITY**		
4.4.1	Insufficient ability of machinery to remain immobilised	5.6 7	Parking brake Information for use
4.4.2	Contact with the wheels	5.2	Propelling, steering
4.4.3	Impact hazard	5.8 7	Edges and angles 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 Pressure limitation 7 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 Table1 below (see 6.2.3).

Table 1 - Maximum allowed forces

TEST LOAD	PROPELLING		LIFTING	STEERING
	STARTING	ROLLING		
kg	N	N	N	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

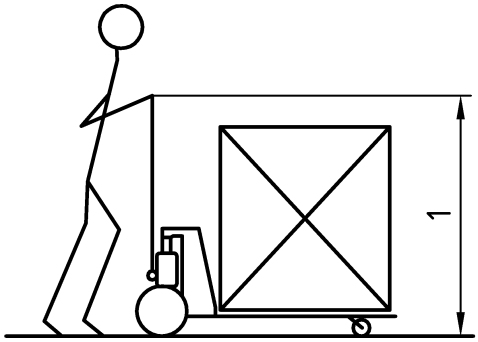
NOTE The values in Table 1 are pure design values for the truck and should not be confused with actual operating forces in the work place (see 7.1.3).

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.

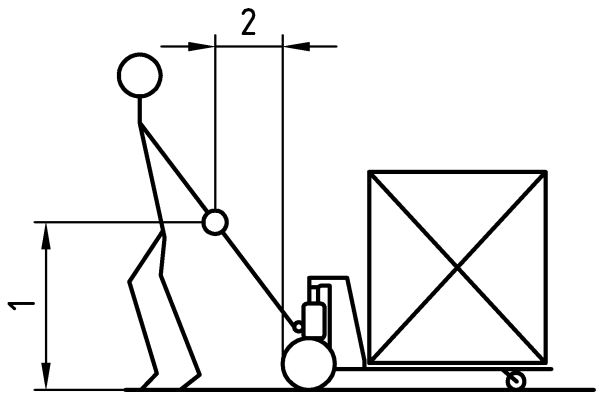
The hand grips shall be of a cross section enclosed within the space between two concentric circles of 25 mm inside diameter and 35 mm outside diameter and provide a minimum span of 100 mm for each hand.

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



Key
1 1 100 mm to 1 300 mm

Figure 2 - Height of the tiller handle



Key

1 700 mm to 1 000 mm
2 500 mm minimum

Figure 3 - Position of the tiller handle when pulling

When pulling the horizontal distance between the end of the tiller and the front of the wheel (Figure 3) shall be more than 500 mm the handle axis being positioned within 700 mm to 1 000 mm height.

The tiller shall automatically and gently return to the upper rest position when released.

5.3 Load handling controls

The lift and lower controls shall be located ergonomically on the tiller and shall enable the operator to activate the controls without releasing hold of the hand grip.

The "lift" and "neutral" controls shall be maintained in the selected position.

The lowering control shall stop lowering movement when released.

The actuating force on selection devices shall not exceed 150 N at rated capacity.

Where the movements of selection device for lifting and lowering take place in a plane parallel to the tiller plane, the lift control shall be selected by pushing the selection devices towards the tiller articulation point, and the lower control by pulling the selection device in the opposite direction (Figure 4).

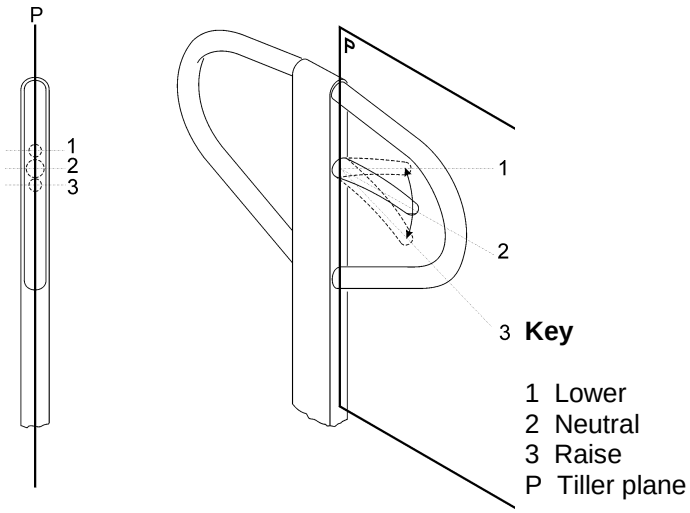


Figure 4 - Example of selection control lever in the plane of the tiller

5.4 Hydraulic system

5.4.1 Stroke and force limitation

Means shall be provided to limit the stroke of the lifting ram and excessive force at stroke end.

5.4.2 Load supporting

The descent of a load equal to the rated capacity caused by an internal leakage in the hydraulic system shall not exceed 10 mm during the first 10 min, under intended operation and with oil at the ambient temperature.

5.4.3 Pressure limitation

The truck shall be designed in such a way that it can be equipped with a pressure limiting device.

5.4.4 Lowering speed limitation

The lowering device shall be designed to allow the operator to control the lowering speed, or the lowering speed shall automatically be limited to 0,1 m/s.

5.5 Pallet handling

Fork arms shall be designed and manufactured to facilitate pallet entry and exit (e.g. use of rollers, skids, ...).

5.6 Parking brake

The truck shall be designed in such a way that it can be equipped with a parking brake.

The parking brake shall be controlled by e.g. : a lever located on the tiller or by a foot pedal, and be able to maintain the truck at a standstill on a level ground.

5.7 Protection against crushing and shearing points

Relative moving parts on the truck within reach of operator in his intended operating position shall be adequately guarded or shall comply with the following minimum distance requirements :

- Places where the operator's fingers can be trapped: 25 mm
- Places where the operator's hands or feet can be trapped: 50 mm
- Places where the operator's arms or legs can be trapped: 100 mm

5.8 Edges and angles

External parts of the truck which may impact parts of the body shall be free of sharp edges and sharp angles.

6 Verification of safety requirements and/or measures

6.1 General

The manufacturer shall verify and record that the requirements of clause 5 are complied with.

The verification of safety requirements shall be carried out by design verification on truck type plus manufacturing arrangements (not described here) plus functional routine verification on each truck to verify its fitness for purpose.

The verifications may be as follows :

- By design e.g. for verification of drawings and documents.
- By measures e.g. of propelling, lifting and steering forces as shown in Table 1 and annex A and tests described in 6.2.2 and 6.3.

Tests shall either be performed by operating the truck in the manner prescribed below or, where practicable, be simulated by any method giving an equivalent effect and producing substantially the same results.

The test load, where applicable, shall be applied according to 3.2 except if specified differently hereunder.

6.2 Design verification on truck type

6.2.1 General

These tests shall be performed on a sample which is representative of series production or on individual truck in case of unit production.

6.2.2 Structural test

A test load of 1,33 times the rated capacity shall be applied at the maximum lift height for a period of 15 minutes.

The truck shall be on substantially firm and level ground.

The test shall not result in any visual permanent deformation or damage.

6.2.3 Verification of design and construction forces

The design and construction forces for truck shall be measured in accordance with annex A.

The test is successful if measured values do not exceed than those laid down in Table 1.

6.2.4 Verification of the parking brake

The parking brake shall maintain the truck at a standstill with its rated capacity in the travelling position on a 5% gradient with a hard smooth surface.

6.2.5 Hydraulic lift leakage test

The permissible lowering shall be tested in accordance with in accordance with 5.4.2.

6.3 Functional routine verification

6.3.1 General

The functional verification shall be carried out on each truck to verify that it is able to safely perform the tasks for which it is designed.

6.3.2 Inspection before tests

6.3.2.1 Each truck shall be inspected to verify that the brake, when fitted, and load handling controls functions are appropriately identified.

6.3.2.2 The information plates for the truck shall be inspected to verify that they contain the information listed in 7.2.

6.3.3 Dynamic test

This test shall be carried out with a load equal to the rated capacity.

a) pick up the load,
b) check parking brake, when fitted, warning and safety devices if any,
c) select "raise" position and raise to maximum lift height,
d) check stroke and force limitation,
e) select "neutral" position and verify,
f) lower and verify that lowering device is working properly,
g) check pressure relief valve setting, when fitted.

In case of incorrect operation, the truck shall be adapted until the test is successful.

6.4 Inspection after tests

Following the tests, the truck shall be examined visually to ensure that there are not defects.

7 Information for use

An instruction handbook complying with the specifications of 5.5 of EN 292-2:1991 and drawn up in the language or languages of the country in which the truck is to be used shall be provided with each truck.

7.1 Instruction handbook

The handbook shall include, if applicable, at least the following.

7.1.1 General obligation

The truck shall be used, serviced and repaired according to the instructions of the manufacturer and shall not be modified or have attachments fitted without ensuring that the truck is still safe.

7.1.2 Instructions concerning the suitability of the truck with the application

- applications for which a pressure limitation is required,
- applications for which a parking brake is required,
- requirements for the floor (non slip, hard, level and without holes or obstacles),
- requirements for ambient lighting (recommended 50 lux at least),
- environmental conditions for which the truck is designed including turning radius.

7.1.3 Instructions to operate the truck - Intended uses

- description of the truck and its accessories,
- description of the safety devices and warning labels,
- information listed in 7.2 - Minimum marking, (serial number not mandatory),
- function of operating controls,
- instructions for parking the truck,
- information on pallets to be used,
- instructions for travelling and manoeuvring safely by the operator,
- instructions for handling loads, specially large loads,
- information about wearing safety shoes or gloves,
- instructions in case of emergency stopping,
- instructions to secure the truck when travelling on lorries.

7.1.4 Residual risks

The manufacturer shall give warnings on residual risks during the use of the truck for example :

- risks when handling heavy loads (see note),
- crushing risk of the feet under the load while the operator is in the intended operating position.
- crushing and shearing points.

NOTE The forces to operate the truck are varying with the value of the load, the ground conditions, the truck conditions. The frequency of the load handling cycle should also be taken into account.

7.1.5 Prohibited uses

The manufacturer shall give warnings on prohibited uses, for example :

- a truck shall not be used on gradients due to possible excessive efforts and loss of control,
- a truck shall not be used on places insufficiently illuminated,
- the tiller shall not be turned at right angles to stop truck,
- a truck shall not be used to transport persons or as a scooter,
- a truck shall not be used as a vehicle jack,
- the extremity of fork arms shall not be used as a lever to lift a load,
- a truck shall not be used in applications where a risk of exceeding the rated capacity exists,
- a truck shall not be used in applications where a risk of unintentional movement exists,
- a truck shall not have direct contact with foodstuffs,
- a truck shall not be used in a potentially explosive atmosphere.

7.1.6 Instructions for service and maintenance of the truck

The instruction handbook shall give information on maintenance operations to be carried out by the operator.

NOTE The maintenance operations that only the manufacturer or personnel appointed by him may operate, are not dealt with in this standard.

- qualification and training of operators,
- contents of the logbook, if the latter is not supplied with the truck (contents and frequency of inspections and maintenance operations, instructions for replacement of wear parts),
- drawings and diagrams necessary for truck servicing and maintenance,
- instructions for verification of marking and warnings,
- use of approved spare parts,
- instructions for disposing of waste material (e.g. fluid).

7.1.7 Instructions for transportation, commissioning, storage and disposal

- mass and overall dimensions of the truck,
- procedures for transporting, including loading and unloading,
- functional tests on completion of commissioning.

7.2 Minimum marking

7.2.1 Information plates

Trucks shall be marked legibly and indelibly (e.g. weather proof) with the following minimum details :

- name and address of the manufacturer or the authorised representative,
- designation of series or type,
- serial number and year of manufacture,
- unladen mass of the truck with integral attachments. The mass may vary from the figure shown by up to $\pm$ 10%,
- rated capacity.

The rated capacity shall be easily readable by the operator.

7.2.2 Other marking

The function of controls shall be legibly and indelibly marked with graphic symbols indicating the function. Each symbol shall be affixed on or in close proximity to the control to which it applies.

Location for slinging shall be clearly indicated on the truck.

7.2.3 Warnings

Warnings shall be affixed to the truck in close proximity to the hazards concerned.

Symbols shall comply with ISO 15870, where available.

7.2.4 Languages

If any of the information in 7.2.2 and 7.2.3 is in writing, it shall be in the language or languages of the country where the truck is to be used.

Annex A
(normative)
Method for measurement of forces (F)

A. 0 Conditions for test

The tests shall be carried out with a new truck, chosen according to 6.2.1, on a smooth, dry, level, troweled finish concrete floor in good condition. The tests shall be conducted in an ambient temperature of between 15°C and 28°C.

The measuring instrument used shall indicate maximum values with ± 3 % accuracy.

The efforts shall be measured in accordance with the methods described below for all the values of load indicated in Table 1 which are less or equal to the rated capacity and located according to 6.1.

A. 1 Measurement of starting force and rolling force

With the truck in starting position and stationary the wheels are positioned in the direction that they naturally take when moving the truck in the test direction.

The force shall be applied horizontally along the truck's axis on the tiller handle. The tiller shall be maintained in vertical position along the truck's axis (Figure A.1).

Two tests in both the forward and reverse directions shall be carried out and the average result recorded.

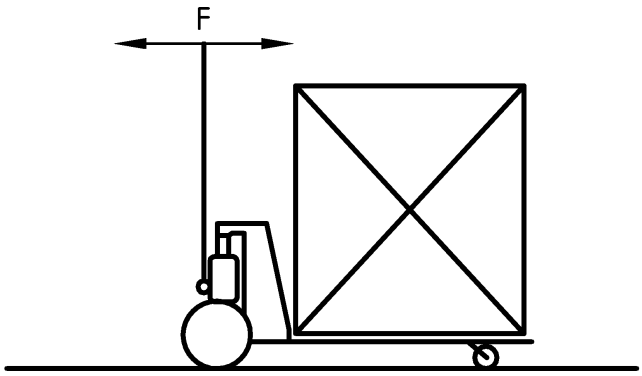


Figure A.1

A. 1.1 Starting force : the maximum value necessary to start the truck shall be recorded.

A. 1.2 Rolling force : the maximum value necessary to maintain the truck at a stabilized speed of 0,5 m/s (± 20%) shall be recorded.

The maximum starting force ED_{max} or the maximum rolling force ER_{max} is the average of the maximum values recorded in each direction of travel, forward AV and reverse AR, during two successive tests.

$$ED_{max} = \frac{ED_{max}\,AV1 + ED_{max}\,AV2 + ED_{max}\,AR1 + ED_{max}\,AR2}{4}$$

$$ER_{max} = \frac{ER_{max}\,AV1 + ER_{max}\,AV2 + ER_{max}\,AR1 + ER_{max}\,AR2}{4}$$

A. 2 Measurement of load lifting force

Engage fork arms into the pallet with its load and lift until they touch the underside of the pallet.

Actuate the tiller with full swing as many times as necessary to lift the load to its maximum height (Figure A.2).

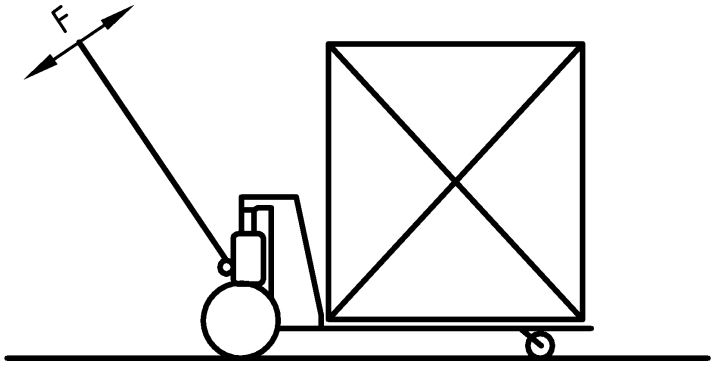


Figure A.2

The maximum force value is measured perpendicular to the tiller at each pumping cycle.

The maximum lifting force EL_{max} is the average of the maximum values measured for each pumping cycle:

$$EL_{max} = \frac{\sum_{1}^{n} EL_{max\ i}}{n}$$

$El_{max\ i}$ Maximum lifting force for cycle i

n = Number of measurement cycles

A. 3 Measurement of the steering force

With the truck stationary and lifted up to its raised position, measurement consists of recording the maximum force applied tangentially in the centre of the tiller handle throughout the steering lock in one direction from the tiller's axial position (Figure A.3).

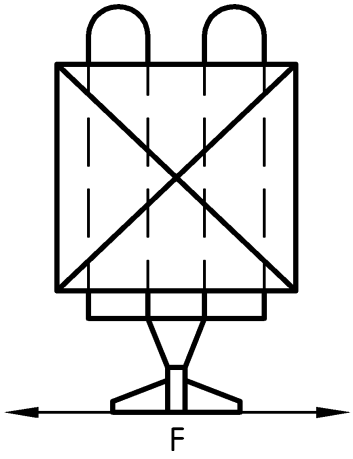


Figure A.3

During measurement the lower surface of the tiller handle is maintained at a height of 950 mm above the ground.

Two measurements are recorded in each direction of tiller steering.

The maximum steering force EB_{max} is the average of the four recorded measurements on the left hand side G and on the right hand side D.

$$EB_{max} = \frac{EB_{max}\ G1 + EB_{max}\ G2 + EB_{max}\ D1 + EB_{max}\ D2}{4}$$

Annex Z
(informative)
Relationship of this document with EC Directives.

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 :

Machinery Directive 98/37/EC, amended by Directive 98/79/EC.

Compliance with this standard provides one means of conforming with the specific essential requirements of the Directive concerned.

WARNING : Other requirements and other EC Directives may be applicable to the product(s) falling within the scope of this standard.

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: 020 8996 9000. Fax: 020 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: 020 8996 9001. Fax: 020 8996 7001. Standards are also available from the BSI website at http://www.bsi-global.com.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: 020 8996 7111. Fax: 020 8996 7048.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: 020 8996 7002. Fax: 020 8996 7001. Further information about BSI is available on the BSI website at http://www.bsi-global.com.

Copyright

BSI
389 Chiswick High Road
London
W4 4AL