



SLOVENSKI STANDARD
SIST EN 1494:2002
01-maj-2002

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Mobile or movable Jacks and associated lifting equipment

Fahrbare oder ortsveränderliche Hubgeräte und verwandte Einrichtungen

Crics mobiles ou déplaçables et équipements de levage associés

Ta slovenski standard je istoveten z: EN 1494:2000

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ICS:

53.020.99 Druga dvigalna oprema Other lifting equipment

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1494

November 2000

ICS 53.020.10; 53.020.99

English version

Mobile or movable Jacks and associated lifting equipment

Crics mobiles ou déplaçables et équipements de levage
associés

Fahrbare oder ortsveränderliche Hubgeräte und verwandte
Einrichtungen

This European Standard was approved by CEN on 18 October 2000.

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 98 "Lifting platforms", the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by May 2001, and conflicting national standards shall be withdrawn at the latest by May 2001.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 EU Directive(s).

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

Generally any standards/draft standards that are published after June 1995 are not referred to in this standard. Excepted are revisions of (draft) standards in case the original (draft) standards had been published before that date.

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.

0 INTRODUCTION

This standard is a type C standard as stated in EN 292.

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.

The object of this European Standard is to define rules for safeguarding persons against the risk of accidents associated with the operation of mobile or movable jacks.

The extent to which hazards are covered is indicated in the scope of this standard. In addition, machinery should comply as appropriate with EN 292 for hazards which are not covered by this standard.

While producing this standard it was assumed that

- only trained persons operate the lifting equipment;
- the working area is adequately light;
- harmful materials such as asbestos are not used;
- components are kept in good repair and working order;

- by design of the load bearing elements a safe operation of the machine is assured for loads up to 100 % of the rated load and during the tests under the conditions given by the manufacturer;
- a negotiation for special uses took place between the user and the manufacturer;
- components without specific requirements are
 - a) designed in accordance with the usual engineering practice and calculation methods, including all failure modes;
 - b) of sound mechanical and electrical construction;
 - c) made of materials with adequate strength and of suitable quality.

1 SCOPE

This European Standard specifies technical safety requirements and measures for mobile or movable jacks (see 3.6) and associated lifting equipment.

This European Standard deals with all significant hazards pertinent to mobile or movable jacks and associated lifting equipment when they are used as intended and under the conditions foreseen by the manufacturer. This European Standard specifies the appropriate technical measures to eliminate or reduce risks arising from the significant hazards.

This standard applies to lifting equipment (see 3.1) which are mobile or movable and designed to operate under the load, whether operated singularly or in multiples to partially or totally raise and lower loads or vehicles at one or more lifting points (excluding the lifting of persons) where working under the raised load is not permitted unless additional means of securing the load in position are in place.

Note: Associated lifting equipment means lifting equipment which is similar to those defined in 3.1, but which does not fully comply with these definitions.

This standard does not establish additional requirements for

- power drive by an internal combustion machine;
- stability of the mobile or movable jacks and associated lifting equipment;
- operation in severe conditions (e.g. extreme climates, freezer application, strong magnetic fields);
- operation subject to special rules (e.g. potentially explosive atmospheres, mines);
- supply by electrical networks where the tolerances in voltage, frequency etc. differ from those in the public supplies;
- static electric problems;
- handling of loads, the nature of which could lead to dangerous situations (e.g. molten metal, acids, radiating materials, especially brittle loads);
- hazards occurring during producing and decommissioning;
- hazards occurring when using the lifting equipment on public roads;

- wind pressure in and out of use;
- direct contact with foodstuffs;
- operation on sea ships.

This standard applies e. g. to the following lifting equipment

- mechanical jacks with or without claw;
- hydraulic jacks with or without claw and with or without intergrated pump, e. g. hydraulic trolley jacks, hydraulic transmission jacks, hydraulic pit jacks;
- pneumatic jacks.

This standard does not apply to

- a) jacks or stabilizers which are permanently fixed to a trailer or a container to support a trailer or container without the tractor-unit;
- b) hydraulic cylinders which are permanently fixed to the vehicle for tipping and/or tilting parts of it;
- c) support stands with the possibility for changing the lift height only without the load;
- d) hydraulic lifting equipment working with a maximum pressure exceeding 500 bar and where pump and cylinder are not intergrated parts of the same equipment;
- e) jacks that are delivered with road vehicles for helping when a break-down occurs (including delivery of original spare parts).

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 applies (including amendments).

EN 292-1:1991	Safety of Machinery - Basic concepts, general principles of design - Part 1: Basic terminology, methodology
EN 292-2:1991	Safety of Machinery - Basic concepts, general principles of design - Part 2: Technical principles and specifications
EN 349	Safety of machinery - Minimum gaps to avoid crushing of parts of the human body
EN 811	Safety of machinery - Safety distances to prevent danger zones being reached by the lower limbs
EN 954-1:1996	Safety of Machinery – Safety-related parts of control systems - Part 1: General principles for design
EN 1070:1998	Safety of machinery - Terminology

EN 60204-32	Safety of machinery - Electrical equipment of machines – Part 32: Requirements for hoisting machines (IEC 60204-32:1998)
EN 60947-5-1:1997	Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices (IEC 60947-5-1:1997)
EN 61496-1:1997	Safety of machinery – Electro-sensitive protective devices - Part 1: General requirements and tests (IEC 61496-1:1997)
EN ISO 4871	Acoustics – Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)
EN ISO 11201:1995	Acoustics – Noise emitted by machinery and equipment – Measurement of emission sound pressure levels at a work station and at other specified positions - Engineering method in an essentially free field over a reflecting plane (ISO 11201:1995)

3 TERMS AND DEFINITIONS

For the purposes of this standard, the following terms and definitions apply:

3.1

lifting equipment

device which permits a load to be raised, lowered or moved.

Lifting equipments within the meaning of this standard are:

3.1.1

mechanical jack

jack in which the load is moved by means of mechanical devices, e. g. rack and pinion jack, screw type bottle jack or mechanical elevator such as a mechanical transmission jack. The jack can also be equipped with claws.

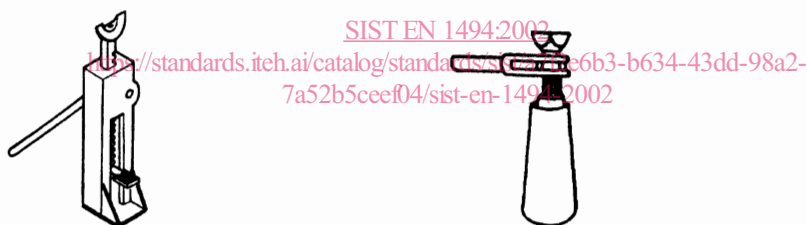


Figure 1 - Examples of mechanical jacks

3.1.2 hydraulic jack

jack in which the load is moved by means of hydraulic.

Note: All types of hydraulic jacks can exist in principle also as pneumatic jack.

3.1.2.1 hydraulic jack with integrated pump

hydraulic jack where the pump is integrated in the jack.

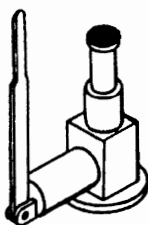


Figure 2 - Example of hydraulic jack with integrated pump

3.1.2.2 hydraulic jack without integrated pump

hydraulic jack where the pump is not integrated in the jack.

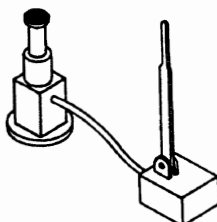


Figure 3 - Example of hydraulic jack without integrated pump

3.1.2.3 hydraulic claw jack

hydraulic jack equipped with a claw. This does not exclude an additional lift pad.

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3.1.2.4

hydraulic trolley jack

manually movable trolley device of which the carried load is set in vertical movement by a hydraulic system.

Key

1 lift pad

2 lifting beam

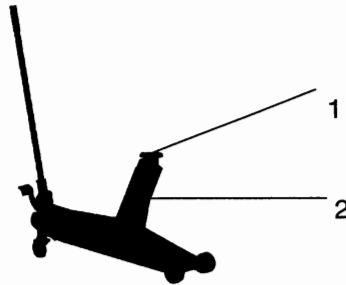


Figure 4 - Example of hydraulic trolley jack

3.1.2.5

hydraulic transmission jack

hydraulic jack mobile freely on the ground, designed to lift loads or to partially lift vehicles.

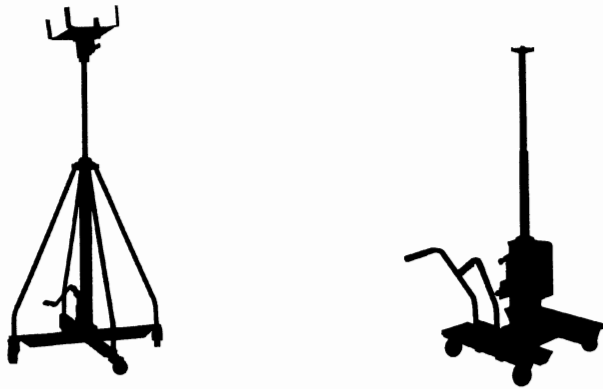


Figure 5 - Examples of hydraulic transmission jacks

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3.1.2.6

hydraulic pit jack

rail guided hydraulic jack on cradle designed to lift loads or to partially lift vehicles.

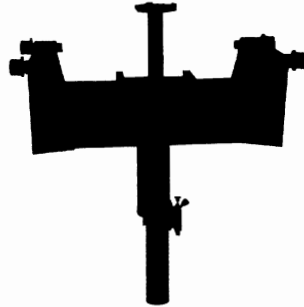


Figure 6 - Example of hydraulic pit jack

3.1.3

pneumatic jack

jack of which the carried load is set in vertical movement by a pneumatic system (see note in 3.1.2).

3.2 Power sources for lifting equipment

3.2.1

manual

the drive results on muscular force.

3.2.2

pneumatic

the drive results on gaseous substances under pressure.

3.2.3

hydraulic

the drive results on hydraulic fluid under pressure.

3.2.4

electric

the drive results on electrical energy.

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3.3

power driven jack

jack in which the drive does not result on muscular force.

3.4

stroke

maximum powered vertical distance that the lifting point can cover.