



**SLOVENSKI STANDARD**  
**SIST EN 1398:1999**

**01-april-1999**

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Dock levellers

Ladebrücken

Rampes ajustables

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**Ta slovenski standard je istoveten z: EN 1398:1997**  
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**ICS:**

53.080      Ú |ääž }æ] !^ { æ      Storage equipment

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EUROPEAN STANDARD

EN 1398

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 1997

ICS 53.080

Descriptors: loading, load rating plates, definitions, safety machines, hazards, accident prevention, design, computation, dimensions, safety measures, verification, tests, utilization, information, operating requirements, maintenance

English version

## Dock levellers

Rampes ajustables

Ladebrücken

This European Standard was approved by CEN on 1997-07-16. 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.

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**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

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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of an identical text or by endorsement, at the latest by February 1998, and conflicting national standards shall be withdrawn at the latest by February 1998.

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.

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 European Standard is a type C-standard as defined in EN 292.

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

Where for clarity, an example of a safety measure is given in the text, this shall not be considered as the only possible solution. Any other solution leading to the same risk reduction is permissible if an equivalent level of safety is achieved.

**1 Scope**

**1.1** This standard is applicable to the calculation, design, construction, safety devices, installation, use, maintenance, and testing of dock levellers

with the exception of (standards.iteh.ai)

- a) dock levellers for marine and aircraft applications,
- b) lifting tables,
- c) vehicle mounted tail lifts

NOTE 1: Requirements for lifting tables are laid down in prEN 1570.

NOTE 2: Requirements for vehicle mounted tail lifts are laid down in prEN 1756-1.

- 1.2** This standard includes dock levellers which are used by persons and/or manual or power driven transport equipment (e.g. forklift trucks) as traffic paths between goods vehicles, both road vehicles and rail waggons, and parts of buildings such as loading docks. This standard does not deal with bridging devices where the load is a complete vehicle, such as a self propelled vehicle or towed trailer. Illustrations of various types of dock levellers are shown in figure 1.

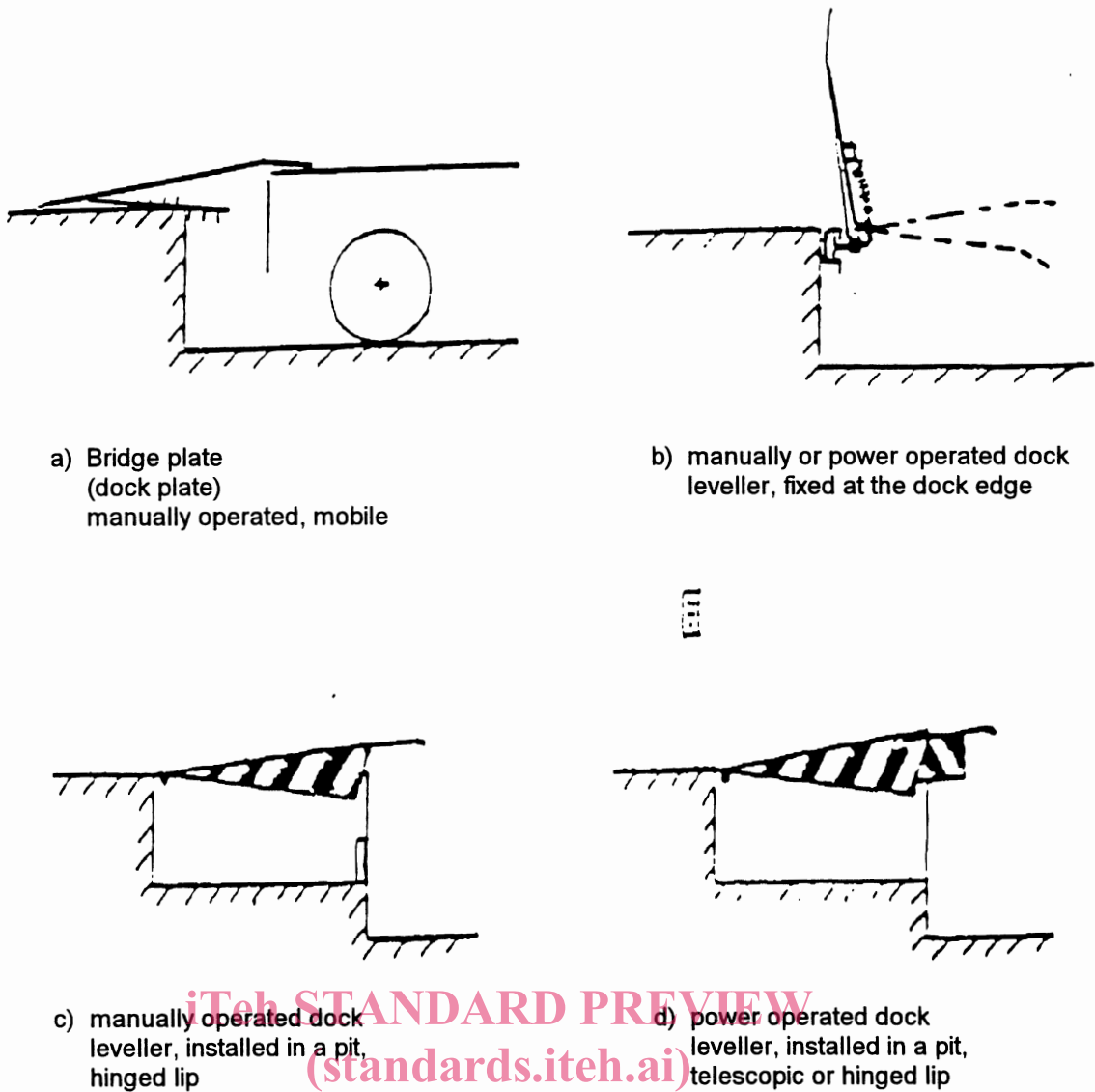


Figure 1: Types of dock levellers  
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- 1.3** This standard contains requirements in order to protect persons and objects against accidents and damage during use and operation of dock levellers.
- 1.4** Persons to be protected are
- operators,
  - maintaining and inspecting personnel,
  - persons near the dock leveller.

**1.5 Objects to be protected are**

- a) goods on dock levellers,
- b) transport equipment on dock levellers.

**1.6 The significant hazards of dock levellers are listed in clause 4.**

These hazards have been identified by risk assessment according to EN 292-2 and require actions to avoid the hazard, or to reduce the risk, which are covered in clauses 5 and 6.

**1.7 The safety requirements are based on the assumption that the dock levellers are regularly maintained by competent persons to the instructions of the manufacturer and that the operating persons have been instructed in the use of the dock levellers.****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 standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 292-1: 1991	Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology
EN 292-2: 1991 + A1: 1995	Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles and specifications
EN 294: 1992	Safety of machinery - Safety distances to prevent danger zones being reached by the upper limbs
EN 349: 1993	Safety of machinery - Minimum distances to avoid crushing of parts of the human body
EN 418: 1992	Safety of machinery - Emergency stop equipment; Functional aspects
prEN 954-1:1996	Safety of machinery - Safety related parts of control systems -Part 1: General principles for design
EN 982: 1996	Safety requirements for fluid power systems and components - Hydraulics
EN 983: 1996	Safety requirements for fluid power systems and components - Pneumatics
EN 60 204-1:1992	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
EN 60 529: 1991	Degrees of protection provided by enclosures - Protection of electrical equipment against contact, foreign bodies and water

EN 60947-4-1: 1991 Low-voltage switchgear and controlgear - Part 4-1: Electro-mechanical contactors and motor-starters

#### CENELEC

HD 419.2S1 Low-voltage switchgear and controlgear - Semiconductor contactors

HD 384.4.41S1 Electrical installations of buildings - Part 4: Protection for safety - Chapter 41: Protection against electrical shock

HD 384.4.47S2 Electrical installations of buildings - Part 4: Protection for safety - Chapter 47: Application of protective measures for safety

### 3 Definitions

For the purposes of this standard the following definitions apply.

**3.1 Dock leveller:** A static or mobile device to bridge the space between a loading dock or similar loading areas and the loading surface of a vehicle which may be at different levels.

Dock levellers may be built as

- manually operated, mobile dock leveller, called bridge plate or dock board, see figure 1a),
- power operated dock leveller built in to a loading dock or fixed at the edge of a dock, see figure 1b) and d),
- manually operated dock leveller built in to a loading dock or fixed to the edge of a dock, see figure 1b and c),

A dock leveller is not designed to lift or lower loads.

NOTE 1: Dock levellers are provided for loading and unloading operations.

NOTE 2: The lifting or lowering mechanism is only provided to make alterations in the position of the unloaded dock leveller.

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**3.2 Dock board / Bridge plate:** A dock leveller, consisting of a manually operated plate, suspended or loose.

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**3.3 Latched dock leveller:** Dock leveller which is held in a certain position by a positively engaged locking device.

**3.4 Bridge deck:** The part of the dock leveller in the form of a plate which is used as traffic path for persons and/or transport equipment, but excluding the lip (see figure 2).



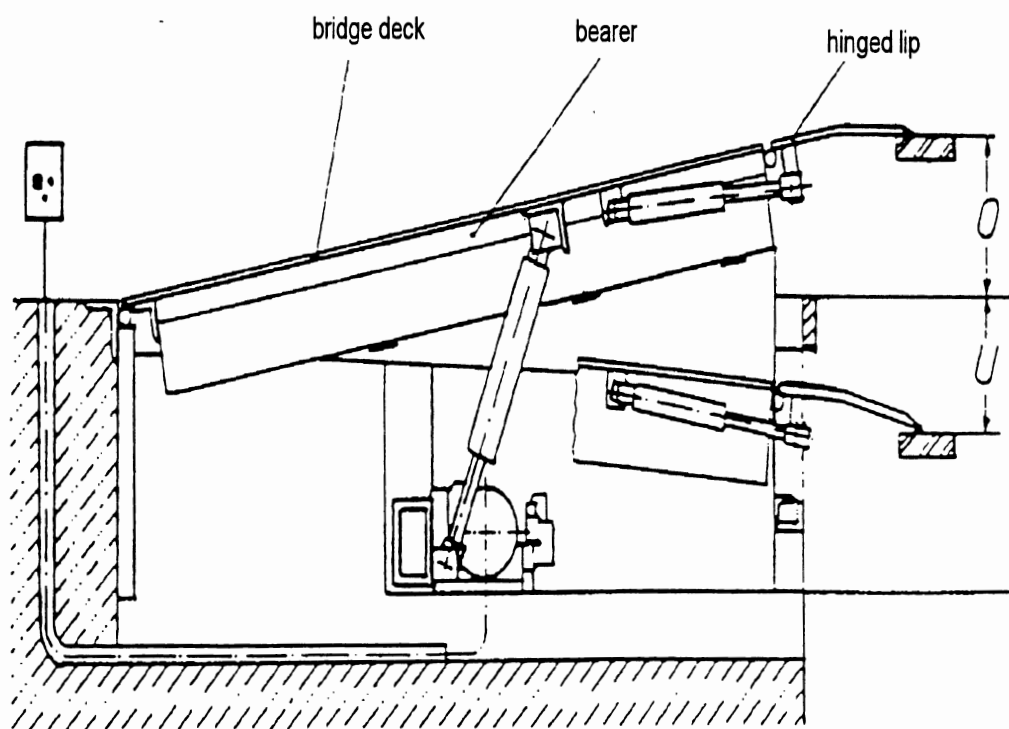


Figure 2: Main parts of a dock leveller

- 3.5 Bearer:** Supporting part of a dock leveller in form of a beam, fixed at the under side of the bridge deck (see figure 2).
- 3.6 Support device:** Part of a dock leveller, e.g. in form of a block, bar or bolt which supports the dock leveller in the horizontal resting position.
- 3.7 Hinged lip:** Part of a dock leveller hinged to the bridge deck and resting on the vehicle in the operational position (see figure 2).
- 3.8 Telescopic lip:** Part of a dock leveller which can be telescopically extended towards the vehicle and which rests on the vehicle in operational position.
- 3.9 Loading:** Whenever the term "loading" is applied in this standard, it is understood to include loading and unloading.
- 3.10 Free floating condition:** A mode in which the dock leveller supported on the vehicle may follow automatically the vertical movements of the vehicle during the loading process.
- 3.11 Resting position:** Position to which the dock leveller is put, or to which it returns, when loading has finished.

- 3.12 Automatic return:** The return cycle of the dock leveller to its resting position without operator control.
- 3.13 Installed:** Fixed to a dock edge or built in to the loading dock or a similar area.
- 3.14 Automatic safety device:** Device which automatically prevents an uncontrolled and dangerous lowering of the loaded dock leveller.
- 3.15 Emergency stop device:** A manually operated device intended to stop all movements of a dock leveller in the event of danger.
- 3.16 Rated load:** The weight of the greatest moving load (including goods, persons and transport equipment for goods) for which the dock leveller is designed.
- 3.17 Competent person:** A person who, in accordance with his training and experience, has sufficient knowledge in the field of dock levellers and is sufficiently familiar with relevant regulations to be able to assess the safe condition of dock levellers.
- 3.18 Operational position:** Position of the dock leveller in which it is provided for loading and unloading.

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**4 List of significant hazards**

The hazards that can influence the safety of persons during operation, maintenance or inspection have been identified by the risk assessment procedure and the corresponding requirements formulated. Table 1 shows the hazards which have been identified and where the corresponding requirements have been formulated in this standard.

**Table 1: Significant hazards and safety requirements**

Significant hazards	Safety requirements; Relevant clauses in this standard	Relevant clauses of EN 292-1:1991
Crushing hazard Shearing hazard	6.1.8, 6.1.9, 6.3.2.1, 6.3.2.2, 6.3.2.4, 6.3.2.5, 6.3.2.7, 6.3.2.8	4.2.1
Impact hazard	6.1.10	4.2.1
High pressure fluid ejection hazard	6.3.4.1, 6.3.4.2, 6.3.4.3, 6.3.4.4, 6.3.4.5	4.2.1
Loss of stability	5	4.2.2
Slip, trip and fall hazard	6.1.1, 6.1.2, 6.1.3, 6.1.4, 6.1.5, 6.1.6, 6.1.7, 6.1.10, 6.2.1, 6.3.1	4.2.3
Electrical contact	6.3.2.6, 6.3.3	4.3
Failure of energy supply	6.3.2.7, 6.3.2.8	4.3
Hazards generated by neglecting ergonomic principles in machine design	6.2.2, 6.2.3	4.9
Failure, malfunction of control system	6.3.2.5, 6.3.2.7	4.10

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