
Varnostne zahteve za dvizne mize

Safety requirements for lifting tables

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ICS

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English Version

Safety requirements for lifting tables

Prescriptions de sécurité des tables élévatrices

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 98.

If this draft becomes a European Standard, 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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Foreword

This document (prEN 1570:2006) has been prepared by Technical Committee CEN/TC 98 "Lifting platforms", the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 1570:1998.

This document 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 document.

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Introduction

This standard is a Type C standard as stated in EN 12100.

This standard has been prepared to be a harmonized standard to provide one means of conforming with the Essential Safety Requirements of the Machinery Directive and associated EFTA Regulations.

The extent to which hazards are covered is indicated in the scope of this standard. In addition, lifting tables should comply as appropriate with EN 12100 for hazards which are not covered in 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.

While producing this standard it was assumed that where there is a special requirement for a low noise level, e. g. hospital applications, theatre applications etc. this will be specified by the customer and appropriate measures taken by the manufacturer.

While producing this standard, it was assumed that only trained persons using the equipment in accordance with manufacturers instructions operate the lifting tables and that the working area is adequately lit.

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1 Scope

1.1 This European Standard specifies the safety requirements for lifting tables for raising and/or lowering goods and/or persons associated with the movement of goods carried by the lifting table (i. e. not for passenger use).

1.2 This European Standard deals with all significant hazards pertinent to lifting tables when they are used as intended and under the conditions foreseen by the manufacturer (see clause 4). This European Standard specifies the appropriate technical measures to eliminate or reduce the risks arising from the significant hazards.

1.3 Both power operated and manually operated lifting tables are included whether stationary or mobile.

1.4 This European Standard does **not** apply to the following equipment:

- permanently installed lifting tables, serving specific levels of a building and fitted with a car;
- lifting tables whose travel speed exceeds 0,15 m/s (unless safe by position and non person carrying);
- power operated lifting platforms for persons with impaired mobility;
- mobile lifting tables for airport ground support equipment;
- lifting tables used as part of a lift under the “Lift Directive”;
- lifting tables used on ships;
- mobile elevating work platforms;
- vehicle lifts for maintenance;
- mobile lifting tables used for fire fighting;
- mobile lifting tables used as fork lift trucks, and order pickers;
- mobile lifting tables with a horizontal travelling speed of more than 1,6 m/s;
- rail dependent storage and retrieval equipment;
- theatre stage lifts;
- scissor lift pallet trucks;
- suspended lifting tables.

1.5 This standard does not consider the power supply to the lifting table by internal combustion engine.

This standard does not establish the additional requirements for:

- operation in severe conditions (e. g. extreme climates, freezer applications, strong magnetic fields);
- operation subject to special rules (e. g. potentially explosive atmospheres, mines);

- 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 construction, transportation and disposal;
- equipment installed on the load platform or replacing it;
- integration into systems or other machines, control from more than two control stations, etc.;
- cable-less controls;
- lifting tables where the hydraulic pressure is derived directly from gas pressure.

2 Normative references

The following referenced documents are indispensable for the application 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 294, *Safety of machinery — Safety distances to prevent danger zones being reached by upper limbs*

EN 349, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body*

EN 414, *Safety of machinery — Rules for drafting and presentation of safety standards*

EN 418, *Safety of machinery — Emergency stop equipment, functional aspects — Principles for design*

EN 563, *Safety of machinery — Temperatures of touchable surfaces — Ergonomics data to establish temperature limit values for hot surfaces*

EN 811, *Safety of machinery — Safety related parts of control systems — Part 1: General principles for design*

EN 982, *Safety of machinery — Safety requirements for fluid power systems and their components — Hydraulics*

EN 983, *Safety of machinery — Safety requirements for fluid power systems and their components — Pneumatics*

EN 1050, *Safety of machinery — Principles for risk assessment*

EN 60204-1:1992, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements*

EN 1088, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection*

EN 1760-1, *Safety of machinery — Pressure sensitive devices — Part 1: General principles for the design and testing of pressure sensitive mats and pressure sensitive floors*

EN 60529, *Degrees of protection provided by enclosures (IP Code)*

EN 61496, *Safety of machinery — Electro-sensitive protective equipment — General requirements and tests*

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EN ISO 12100-1:2003, *Safety of machinery — Basic concepts — General principles for design — Part 1: Basic terminology, methodology*

EN ISO 12100-1:2003, *Safety of machinery — Basic concepts — General principles for design — Part 2: Technical principles*

ISO 606, *Short-pitch transmission precision roller chains and chain wheels*

ISO 2408, *Steel wire ropes for general purposes — Characteristic*

ISO 4301-1, *Cranes and lifting appliances — Classification — Part 1: General*

ISO 4308-1, *Cranes and lifting appliances — Selection of wire ropes — Part 1: General*

ISO 4308-2, *Cranes and lifting appliances — Selection of wire ropes — Part 1: Mobile cranes — Coefficient of utilization*

3 Terms and definitions

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

3.1

lifting table

load lifting device with a load supporting platform rigidly guided throughout its travel (e. g. guided by its own mechanism)

3.2

fixed lifting table

a lifting table where the place of installation is not intended to be changed

3.3

moveable lifting table

a lifting table installed so that the place of installation may be readily changed

3.4

mobile lifting table

a load lifting device which is mobile by one or more integrated devices (e. g. wheels, air cushions etc.)

3.5

guided mobile lifting table

a lifting table which runs on a pre-set route, (e. g. on rails, in tracks etc.)

3.6

self-propelled lifting table

a lifting table, other than vehicle mounted, which is capable of horizontal movement under its own power

3.7

automatic programme controlled lifting table

a lifting table where movement takes place that is not initiated by the normal manual controls (e. g. self levelling etc.)

3.8

load platform

the part of the lifting table (including linking/bridging plate) designed to accommodate the working load and/or persons. Fork arms are considered as a load platform for goods only

3.9**vertical travel**

the vertical distance between the highest and the lowest working position for which the lifting table is designed

3.10**nominal load**

the load that the manufacturer has guaranteed that the machine will lift when used in accordance with the instruction handbook

3.11**guard**

part of the machine specifically used to provide protection by means of a physical barrier

3.12**safe by position**

condition when a lifting table or part of a lifting table is sufficiently shielded from access to avoid any hazard to persons or goods

3.13**emergency stop control**

that component of emergency stop equipment which generates the emergency stop signal when the associated manual control (actuator) is operated

3.14**operator**

the person operating the lifting table

3.15**maximum working pressure**

the highest pressure in the hydraulic or pneumatic system or part of system at which it is intended to operate under normal working conditions with rated load

3.16**person carrying lifting table**

a lifting table whose platform is entered by a person or persons for the purpose of loading or unloading or the lifting or persons associated with the transporting of goods

3.17**car**

load carrying platform completely enclosed by full length walls, door(s) and ceiling with the exception of ventilation apertures

4 List of hazards

The list of hazards according to the following table is based on EN 1050.

The table has been formulated to show the hazards, hazardous situations and hazardous events which have been identified by risk assessment to be relevant for this type of machinery and which require action to eliminate or reduce risk.

Table 1

Hazard Reference no.	Hazards, hazardous situations and hazardous events	Clause no. in this standard
1	Mechanical hazards due to: — Machine parts or work pieces, e. g.: a) Shape b) Relative location c) Mass and stability (potential energy of elements which may move under the effect of gravity) d) Mass and velocity (kinetic energy of elements in controlled and uncontrolled motion) e) Inadequacy of mechanical strength — Accumulation of energy inside the machinery, e. g.: f) Elastic elements (springs)	5.2.1,5.2.8 5.2.8 5.1.1.7 5.1.1.6 5.1 5.8.10, 5.9.6
1.1	Crushing hazard	5.2.1/2/3/4/6
1.2	Shearing hazard	5.2.1/2/3/4/6
1.3	Cutting or severing hazard	5.2.8
1.4	Entanglement hazard	5.2.9
1.5	Drawing-in or trapping hazard	5.2.10
1.6	Impact hazard	5.2.11
1.9	High pressure fluid injection or ejection hazard	5.8.3
2	Electrical hazards due to:	
2.1	Contact of persons with live parts (direct contact)	5.10.1
2.2	Contact of persons with parts which have become live under faulty conditions (indirect contact)	5.10.1/2
2.3	Approach to live parts under high voltage	5.10.1/2
3	Thermal hazards, resulting in:	
3.1	Burns, scalds and other injuries by a possible contact of persons with objects or materials with an extreme high or low by flames or explosions and also by the radiation of heat sources	5.2.16
4	Hazards generated by noise	See Annex B
7	Hazards generated by materials and substances (and their constituent element) processed or used by the machinery	5.8.2/3, 7.2.3
7.1	Hazards from contact with or inhalation of harmful fluids, gases, mists, fumes, and dusts	5.8.2/3, 7.2.3
8	Hazards generated by neglecting ergonomic principles in machinery design as, e. g. hazards from:	5.6.4, 5.6.11, 5.8.11

Table 1 (continued)

Hazard Reference no.	Hazards, hazardous situations and hazardous events	Clause no. in this standard
8.1	Unhealthy postures or excessive effort	5.6.4, 5.6.11, 5.8.11
8.2	Inadequate consideration of hand-arm or foot-leg anatomy	5.2.1/2
8.4	Inadequate local lighting	Introduction
8.6	Human error, human behaviour	5.5.2, 5.5.4, 5.5.6, 5.7.7
8.7	Inadequate design, location or identification of manual controls	5.5.1, 5.5.3/4/5/6/7
10	Unexpected start-up, unexpected overrun/overspeed (or any similar malfunction) from;	
10.2	Restoration of energy supply after an interruption	5.10.1
10.3	External influences on electrical equipment	5.10.1
10.4	Other external influences (gravity, wind, etc.)	5.5.3/4/5
10.6	Errors made by the operator (due to mismatch of machinery with human characteristics and abilities, see 8.6)	5.5.3/4/5/6
11	Impossibility of stopping the machine in the best possible conditions	5.5.7
13	Failure of the power supply	5.10.1
14	Failure of the control circuit	5.10.1
15	Errors of fitting	7.3
16	Break up during operation	5.1.1, 5.7.5, 5.8.7, 5.9.7, 7.1, 7.2
17	Falling or ejected objects or fluids	5.8.1/2/3/4, 5.2.13/14, 7.1
18	Loss of stability/overturning of machinery	5.1.2
19	Slip, trip and fall of persons (related to machinery)	5.2.12/13/14/15, 5.4.1
Additional hazards, hazardous situations and hazardous events due to mobility		
20	Relating to the travelling function	
20.1	Movement when starting the engine	5.6.3
20.2	Movement without a driver at the driving position	5.6.2
20.3	Movement without all parts in safe position	5.2.19, 5.3.2
20.4	Excessive speed of pedestrian controlled machinery	5.3.2
20.5	Excessive oscillations when moving	5.3.3
20.6	Insufficient ability of machinery to be slowed down, stopped and immobilised	5.6.2, 5.6.5, 5.6.8