



**SLOVENSKI STANDARD**  
**oSIST prEN 1493:2020**  
**01-oktober-2020**

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**Dvigala za servisiranje vozil**

Vehicle lifts

Fahrzeug-Hebebühnen

Élévateurs de véhicules

**Ta slovenski standard je istoveten z: prEN 1493**

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**ICS:**

43.180	Diagnostična, vrževalna in preskusna oprema	Diagnostic, maintenance and test equipment
53.020.99	Druga dvigalna oprema	Other lifting equipment

**oSIST prEN 1493:2020**

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## Vehicle lifts

Élévateurs de véhicule

Fahrzeug-Hebebühnen

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

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
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## European foreword

This document (prEN 1493:2020) 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 1493:2010.

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.

EN 1493:2020 includes the following major changes with respect to EN 1493:2010:

- new definitions added;
- references to standards updated;
- rewording of a lot of paragraphs;
- updated requirements for mobile column lifts;
- requirements for dimensioning of ropes changed;
- some requirements for locking system of carrying arms added;
- requirements regarding protection against leakage in hydraulic systems clarified;
- additional requirements for lifts for motorcycles added;
- consideration on self braking drives added;
- new annexes with test methods for:
  - unintended blocking of the load carrying device;
  - carrying arms;
  - track end stops;
  - arm locking device;
  - end stop of telescopic arms.

## Introduction

This document is a type C standard as stated in EN ISO 12100:2010.

The machinery concerned and the extent to which hazards, hazardous situations and hazardous events are covered, are both indicated in the scope of this document. In addition, machinery should comply as appropriate with EN ISO 12100 for hazards which are not covered by this document.

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.

The object of this document is to define rules for safeguarding persons against the risk of accidents associated with the operation of vehicle lifts.

While devising this document it was assumed that only authorized persons operate the vehicle lifts and that the working area is sufficiently lit.

The requirement concerning loading control is not deemed pertinent to this document insofar as:

- experience and the state of the art suggests that failing to observe this requirement has not historically given rise to unsafe situations;
- such devices which would give protection against overall and local overloading are not currently available in forms which cover all eventualities;
- the weight and weight distribution is freely available for the type of vehicles to be lifted and as such it is the responsibility of the user to prevent an unsafe situation arising;
- vehicle lifts are generally designed to suit the maximum weight of vehicle to which it would reasonably be subjected, hence the normal duty of a lift is substantially lower than the maximum.

Document Preview

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## 1 Scope

This document applies to stationary, mobile and movable vehicle lifts, which are not intended to lift persons but which are designed to raise vehicles totally, for the purpose of examining and working on or under the vehicles whilst in a raised position. The vehicle lift may consist of one or more lifting-units.

Power supply to the vehicle lift by internal combustion engines is not considered.

The floor or ground supporting the vehicle lift in use is assumed to be horizontal.

This document does not exclude a person to enter in a lifted vehicle on wheel supporting lifts, e.g. for special works or for periodical technical inspection, and vehicle lifts for rail-bound vehicles.

This document does not contain requirements for hazards which may arise on vehicle lifts where the carrying device can be tilted.

This document is not valid for equipment for power driven parking of motor vehicles (see EN 14010). This document is applicable to vehicle lifts which are manufactured six month after the date of its publication as EN.

## 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 10025-2:2019, *Hot rolled products of structural steels — Part 2: Technical delivery conditions for non-alloy structural steels*

EN 13557:2008+A2:2008, *Cranes — Controls and control stations*

EN 60204-1:2018, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2016, modified)*

EN 60204-32:2008, *Safety of machinery — Electrical equipment of machines — Part 32: Requirements for hoisting machines (IEC 60204-32:2008)*

<https://standards.iteh.ai/catalog/standards/sist/1331ca12-2e1a-4dfc-a0d0-37b9e2a64cb9/sist-en-1493-2023>  
EN 60529:1991,<sup>1</sup> *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

EN 60947-5-1:2017, *Low-voltage switchgear and controlgear — Part 5-1: Control circuit devices and switching elements — Electromechanical control circuit devices (IEC 60947-5-1:2016)*

EN ISO 4413:2010, *Hydraulic fluid power — General rules and safety requirements for systems and their components (ISO 4413:2010)*

EN ISO 4414:2010, *Pneumatic fluid power — General rules and safety requirements for systems and their components (ISO 4414:2010)*

EN ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction (ISO 12100:2010)*

EN ISO 13849-1:2015, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2015)*

<sup>1</sup> As impacted by EN 60529:1991/AC:2006-12, EN 60529:1991/A1:2000, EN 60529:1991/A2:2013 and EN 60529:1991/A2:2013/AC:2019-02.

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EN ISO 13849-2:2012, *Safety of machinery — Safety-related parts of control systems — Part 2: Validation (ISO 13849-2:2012)*

EN ISO 13850:2015, *Safety of machinery — Emergency stop function — Principles for design (ISO 13850:2015)*

ISO 16625:2013, *Cranes and hoists — Selection of wire ropes, drums and sheaves*

**3 Terms and definitions**

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

**3.1 General****3.1.1****vehicle lift**

lifting device with guided load carrying device for lifting land based means of transport such as cars, motorcycles, lorries, buses, trams, rail vehicles, industrial trucks and similar, in the following named vehicle, which is designed for working on or under the raised vehicle

NOTE 1 to entry The guidance of the load carrying device is given by the supporting structure.

NOTE 2 to entry The following types of vehicle lift are examples of those covered by this definition: single and multi-column lifts, single and multi-cylinder lifts, mobile column lifts, scissor and parallelogram lifts, short stroke lifts, which support vehicle wheels, chassis or other designated lifting points (see Annex C (informative)).

**3.1.2****normative vehicle**

theoretical vehicle representative of the normal vehicles on which a lift is intended to operate, used as reference vehicle for structural calculations of the lift itself (see 4.7.4.2, 4.7.4.3)

**3.1.3****normal vehicle**

land based mean of transport such as cars, motorcycles, lorries, buses, trams, trucks and similar commonly on the road

**3.1.4****special vehicle**

vehicle that does not fall within the *normal vehicle* types and for which the Normative Vehicle is no longer representative (i.e.: fork lifts, dumpers, snowcats, railbound vehicles, mobile cranes, ...)

**3.1.5****wheel track**

distance between the centre lines of the wheels on one axle or between centre lines of wheel pairs on twin wheel axles

### 3.1.6

#### **wheel base**

distance between the centres of wheels of front and rear axle or from the centre of the wheels on the front axle to a point mid-way between axle pairs on twin axle vehicles

### 3.1.7

#### **rated load**

maximum load that a lift has been designed to carry referring to the normative vehicle or to special vehicles mentioned in 4.7.4.4

### 3.1.8

#### **lifting capacity**

maximum load that a single independent lifting unit has been designed to carry when part of a multiple lifting units lift

### 3.1.9

#### **hazardous area**

area under the load carrying device and under the lifted vehicle

Note 1 to entry The hazardous area is part of the hazard zone according to EN ISO 12100:2010, 3.11.

### 3.1.10

#### **bystander**

person other than the operator near the vehicle lift

### 3.1.11

#### **initial position**

lower limit position of the carrying device

### 3.1.12

#### **unauthorised use**

use by a person who has not received permission to operate the lift and instruction on its safe operation

### 3.1.13

#### **competent body**

single person or organization that has the knowledge and the skill to conduct the work or examination

### 3.1.14

#### **periodical test investigation (PTI)**

periodic roadworthiness tests for motor vehicles and their trailers in accordance with current legislation

## 3.2 Lift parts

### 3.2.1

#### **lifting unit**

lifting device in general made up of a load carrying device, a supporting structure and its driving system

Note 1 to entry: A lifting unit may share the drive system/controls with other lifting units.

Note 2 to entry: Examples of lifting units are one of column of a two post lift (see Figure C.2), one unit of a double-scissor lift (see Figure C.3).

### 3.2.2

#### **independent lifting unit**

lifting unit not sharing the drive system with other lifting units and equipped with independent controls

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Note 1 to entry: Example of an independent lifting unit is a single column of a mobile column lift.

**3.2.3****supporting structure**

part(s) of the vehicle lift which offers guidance to the load carrying device, but which is not moving when the load is raised/lowered.

EXAMPLE The post on a two/four post lift.

**3.2.4****load carrying device**

part(s) of the vehicle lift which supports the load either by direct contact with the vehicle or through contact with pick-up plates or pads

Note 1 to entry: The load carrying device is the part of the structure of the lift which is moving when the load is raised/lowered.

EXAMPLE Tracks, platforms, carrying arms or other mechanical devices designed to raise and support a vehicle by designated lifting points.

**3.2.5****lifting element**

medium through which the force is transmitted from the power source to the load carrying device

Note 1 to entry: Lifting elements include hydraulic and pneumatic cylinders, lead screw and nut systems as well as any flexible connections such as steel wire ropes and chains.

**3.2.6****mechanical lifting element**

lifting element that is reasonably subjected to wear

Note 1 to entry: Mechanical lifting elements are e.g. ropes, chains, carrying nuts and gears. Hydraulic and pneumatic cylinders do not fall under this definition.

**3.2.7****carrying arm**

load carrying device attached at one end, directly or indirectly to the lifting element and supporting the load at its other end

Note 1 to entry: Carrying arms are as an example used on two column lifts.

**3.2.8****platform**

horizontal surface or structure, part of the load carrying device, designed to drive on it with the vehicle when entering/leaving the vehicle lift.

Note 1 to entry: E.g. tracks in scissor lifts.

**3.2.9****pick-up plate**

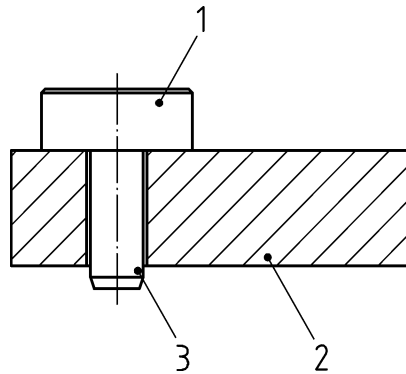
part of the load carrying device, e.g. on two column lifts with carrying arms, which has direct contact to the vehicle and which has an assigned position on the load carrying device

NOTE 1 to entry See Figure 1.

**3.2.10****pick-up pad**

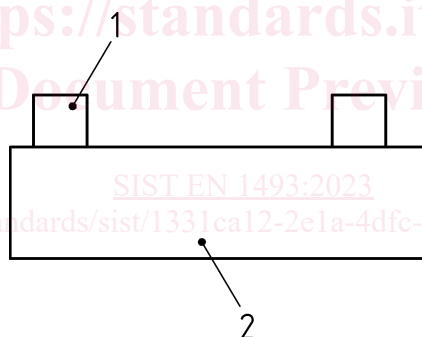
vehicle supporting pad which has direct contact with the vehicle but which does not have an assigned position, e.g. pads used on wheel free systems with platforms

NOTE 1 to entry See Figure 2.

**Key**

- 1 pick-up plate
- 2 load carrying device
- 3 pin

**Figure 1 — Pick-up plate**

**Key**

- 1 pick-up pad
- 2 platform

**Figure 2 — Pick-up pad**

**3.2.11****fixed controls**

control devices fixed to the structure of the lift or in any case set in a predefined fixed position when the lift is installed (e.g. fixed control console, controls installed on the walls of the workshop where the lift is installed)

**3.2.12****mobile controls**

control devices not fixed to the lift structure or somewhere else

**prEN 1493:2020 (E)****3.2.13****wheel free system**

lifting unit which is used in conjunction with a pit or vehicle lift with platform lifting the whole vehicle and allows the wheels to be removed

**3.3 Lift type****3.3.1****multiple lifting units lift**

combination of independent lifting units acting as one lift

**3.3.2****short stroke lift**

floor mounted vehicle lift with a maximum vertical travel of not more than 500 mm, which is not designed for working under the raised load

NOTE 1 to entry These lifts are different to wheel free systems according to 3.2.13.

**3.3.3****fixed vehicle lift**

vehicle lift fixed permanently to its location

**3.3.4****movable vehicle lift**

vehicle lift which can fulfil its function without being fixed to the floor and may be designed to be transportable

**3.3.5****mobile vehicle lift**

movable vehicle lift equipped with wheels, rollers, etc. such that it can be moved from one place to another with or without load

**3.3.6****manually driven vehicle lift**

vehicle lift where the load carrying device is driven by manual effort

**3.3.7****power-driven vehicle lift**

vehicle lift where the load carrying device is not driven by manual effort

**3.3.8****mechanically driven vehicle lift**

power-driven lift not using hydraulic nor pneumatic fluid power

**3.3.9****manually mobile vehicle lift**

mobile vehicle lift which is moved by manual effort alone

**3.3.10****vehicle lift with powered mobility**

mobile vehicle lift fitted with a displacement system operated by other than directly applied human or animal effort