SLOVENSKI STANDARD
oSIST prEN 50374:2021

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Nadomešča:
SIST EN 50374:2004

Vozički za delo na nadzemnih vodih

Conductor carts

Leitungsfahrzeuge

Nacelles suspendues

Ta slovenski standard je istoveten z: **prEN 50374**

ICS:

13.260	Varstvo pred električnim udarom. Delo pod napetostjo	Protection against electric shock. Live working
29.240.20	Daljnovodi	Power transmission and distribution lines

oSIST prEN 50374:2021 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

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DRAFT
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ICS

Will supersede EN 50374:2004 and all of its amendments and corrigenda (if any)

English Version

Conductor carts

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This draft European Standard is submitted to CENELEC members for enquiry.
Deadline for CENELEC: 2021-03-12.

It has been drawn up by CLC/TC 78.

If this draft becomes a European Standard, CENELEC 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.

This draft European Standard was established by CENELEC in three official versions (English, French, German).
A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (prEN 50374:2020) has been prepared by CLC/TC 78 “Equipment and tools for live working”.

This document is currently submitted to the Enquiry.

The following dates are proposed:

• latest date by which the existence of this document has to be announced at national level	(doa)	dor + 6 months
• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	dor + 12 months
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	dor + 36 months (to be confirmed or modified when voting)

This document will supersede EN 50374:2004 and all of its amendments and corrigenda (if any).

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

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

1 Scope

This document applies to conductor cars that are used to access overhead line conductors, shield wires or shield wires with integrated communication systems to undertake work involving rectification of defects and/or installing components and fittings. This document covers also bicycle type access equipment where it is applicable.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1011-4:2000, *Welding - Recommendations for welding of metallic materials - Part 4: Arc welding of aluminium and aluminium alloys*

EN 60204-1:2006, *Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204 1:2005, modified)*

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

EN ISO 10042:2018, *Welding - Arc-welded joints in aluminium and its alloys - Quality levels for imperfections (ISO 10042:2018)*

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

3 Definitions

For the purposes of this document, the following terms and definitions apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
conductor car
devices designed to be used as mobile working platforms while suspended from overhead line conductors or shield wires

Note 1 to entry: The conductor cars can be moved either manually, pulled using a rope or by built in traction source.

3.2
drive brake
used for slowing down and stopping the conductor car and holding the conductor car in position to carry out work

3.3
locking brake
applied directly to the conductor and used for securing the car at a position on the conductor or shield wire

3.4
conductor
wire or combination of wires not insulated from one another, suitable for carrying an electric current

Note 1 to entry: The conductors are strung between two overhead line support structures.

Note 2 to entry: The conductor may be arranged as a single conductor or as a conductor bundle, consisting of at least two conductors.

3.5 Tests

3.5.1
type test
conformity test made on one or more items representative of the production

[SOURCE: IEC 6050-151:2001, 151-16-16]

3.5.2
acceptance test
contractual test to prove to the customer that the item meets certain conditions if its specification

[SOURCE: IEC 6050-151:2001, 151-16-23]

3.5.3
periodical test
inspection/test carried out at set intervals by a trained competent individual to check the conformity and functionality of the conductor car

3.6
operating control
components fitted to the conductor car that when operated controls the movement of the conductor car by controlling the power source i.e. the flow, position of information, energy and/or material

3.7
load-bearing structure
main structure of the conductor car that has been designed to withstand the specified loads and which can be made up of individual components mechanically bonded together

3.8
guide axle
comprised of swivel and locking mechanism, axles and guide roller (free running)

3.9
safety sling
secondary device used to prevent the conductor car from falling if the wheels or rollers become detached from the conductor

3.10
fall arrest attachment options
suitable connection point for fall arrest equipment of the operator that is mechanically strong enough to withstand the potential loads in event of a fall from height and which can either be connected to the conductor or to the attachment option on the conductor car

3.11
lifting point
designated lifting point for use when the conductor car is being raised to or lowered from the overhead line

3.12
maximum angle of inclination of the conductor
maximum angle of the conductor cable specified by the manufacturer that the conductor car can safely operate in reference to the angle of the conductor with respect to the horizontal plane

3.13
working load limit
maximum load the conductor car can be safely operated at, as specified by the manufacturer

3.14
safety net
optional attachment that provides protection against objects being dropped while working in the conductor car

4 List of significant hazards

Table 1 contains a list of significant hazards associated with the conductor car and associated equipment that could harm the operator/s during normal use of the conductor car and if it is used incorrectly. By following this document during the design and manufacture process should help mitigate the risk of the operator/s being harmed when the conductor car and associated equipment is being used.

NOTE 1 The significant hazards are based upon EN ISO 12100:2010.

Table 1 — List of significant hazards and associated requirements

	Hazards	Relevant clause(s) in this document/Comments
1	Mechanical hazards caused by mechanical equipment e.g.:	
	a) shape;	5.2
	b) relative location;	5.3
	c) mass and stability (potential energy of elements which could move under the effect of gravity);	5.6
	d) mass and velocity (kinetic energy of elements in controlled or uncontrolled motion);	5.3, 5.7
	e) inadequacy of mechanical strength.	5.2
1.1	Crushing hazard	5.6.3
1.2	Shearing hazard	5.6.3
1.3	Cutting or severing hazard	5.6.3
1.4	Entanglement hazard	5.6.3
1.5	Drawing-in or trapping hazard	5.6.3
1.6	Friction or abrasion hazard	5.6.4
1.7	High pressure fluid injection or ejection hazard	5.9.2
1.8	Slipping, tripping and falling	5.8, 5.7, 5.3
2	**Electrical hazards due to:**	
2.1	Contact of persons with live parts (direct contact)	5.9.3
2.2	Contact of persons with parts which have become live under faulty conditions (indirect contact)	5.9.3
2.3	Approach to live parts under high voltage	5.9.3, 5.10

	Hazards	Relevant clause(s) in this document/Comments
2.4	Electrostatic phenomena	5.9.3, 5.10
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 temperature, by flames or explosions and by the radiation of heat sources	5.9.5
4	**Hazards generated by noise, resulting in:**	
4.1	Hearing loss (deafness), other physiological disorders (e.g. loss of balance, loss of awareness)	5.13
4.2	Interference with speech communication, acoustic signals etc.	5.13
5	**Hazards generated by vibration due to:**	
5.1	Whole body vibration, particularly when combined with poor postures	5.13
6	**Hazards generated by materials and substances (and their constituent elements) processed or used by the machinery due to:**	
6.1	Hazards from contact with or inhalation of harmful fluids, gases, mists, fumes, and dusts	5.9.5
6.2	Fire or explosion hazard	5.9.4, 5.9.5
7	**Hazards generated by neglecting ergonomic principles in machinery design as, e.g. hazards from:**	
7.1	Inadequate consideration of hand-arm or foot-leg anatomy	5.9.6
7.2	Inadequate local lighting	5.13
7.3	Human error, human behaviour	5.4.2
7.4	Inadequate design, location or identification of manual controls	5.9.6
8	**Unexpected start-up, unexpected overrun/overspeed (or any similar malfunction) from:**	
8.1	Failure/disorder of the control system	5.4.2, 5.4.3
8.2	Restoration of energy supply after an interruption	5.9.6
8.3	External influences on electrical equipment	5.10
8.4	Errors made by the operator (due to mismatch of machinery with human characteristics and abilities, see 8.6)	5.4.2
8.5	Overspeed during operation	5.4.2, 5.4.3, 5.9.7
9	Impossibility of stopping the machine in the best possible conditions	5.4.2, 5.4.3
10	Failure of the power supply	5.9.6, 5.9.2, 5.9.3
11	Failure of the control circuit	5.4.2, 5.4.3
12	Errors of fitting	5.2
13	Break-up during operation	5.13
14	Falling or ejected objects or fluids	5.5, 5.9.2

	Hazards	Relevant clause(s) in this document/Comments
15	Slip, trip and fall of persons (related to machinery)	5.5, 5.6
Additional hazards, hazardous situations and hazardous events due to mobility		
16	**Relating to the travelling function:**	
16.1	Movement when starting the engine	5.9.6
16.2	Movement without a driver at the driving position	5.9.6
16.3	Insufficient ability of machinery to be slowed down, stopped and immobilised	5.4.2, 5.4.3, 5.9.7
17	**Linked to the work position (including driving station) on the machine due to:**	
17.1	Fall of persons during access to (or at/from) the work position	5.5, 5.6
17.2	Exhaust gases/lack of oxygen at the work position	5.9.5
17.3	Fire (flammability of the cab, lack of extinguishing means)	5.9.5
17.4	Mechanical hazards at the work position: – contact with the wheels; – rollover and overturning – slipping during access; – fall of objects, penetration by objects; – break-up of parts rotating at high speed; contact of persons with machine parts or tools (pedestrian controlled machines).	5.6
17.5	Noise at the work position	5.13
17.6	Vibration at the work position	5.13
18	**Due to the control system:**	
18.1	Inadequate location of manual controls	5.9.6
18.2	Inadequate design of manual controls and their mode of operation	5.9.6
19	**Due to the power source and to the transmission of power:**	
19.1	Hazards from the engine and the batteries	5.9.4, 5.9.6
19.2	Hazards from coupling and towing	5.7
20	**From/to third persons due to:**	
20.1	Lack or inadequacy of visual or acoustic warning means	5.6.5
21	**Insufficient instructions for the driver/operator**	
Additional hazards, hazardous situations and hazardous events due to lifting		
22	**Mechanical hazards and hazardous events:**	5.8