



SLOVENSKI STANDARD
oSIST prEN 14492-1:2026
01-maj-2026

Dvigala (žerjavi) - Motorni vitli in dvižni mehanizmi - 1. del: Motorni vitli

Cranes - Power driven winches and hoists - Part 1: Power driven winches

Krane - Kraftgetriebene Winden und Hubwerke - Teil 1: Kraftgetriebene Winden

Appareils de levage à charge suspendue - Treuils et palans motorisés - Partie 1 : Treuils de traction motorisés

Ta slovenski standard je istoveten z: prEN 14492-1

ICS:

53.020.20 Dvigala Cranes

oSIST prEN 14492-1:2026 **en,fr,de**

Sample Document

get full document from standards.iteh.ai

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 14492-1

May 2026

ICS 53.020.20; 53.020.99

Will supersede EN 14492-1:2006+A1:2009

English Version

Cranes - Power driven winches and hoists - Part 1: Power driven winches

Appareils de levage à charge suspendue - Treuils et palans motorisés - Partie 1 : Treuils de traction motorisés

Krane - Kraftgetriebene Winden und Hubwerke - Teil 1: Kraftgetriebene Winden

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 147.

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.

This draft European Standard was established by CEN 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.

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.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

© 2026 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. prEN 14492-1:2026 E

Contents	Page
European foreword.....	6
1 Scope.....	8
2 Normative references.....	8
3 Terms and definitions.....	11
4 Safety requirements and/or protective measures.....	14
4.1 General.....	14
4.2 Classification.....	14
4.3 Requirements for strength.....	14
4.3.1 Basic standards.....	14
4.3.2 Proof of static strength.....	15
4.3.3 Proof of fatigue strength.....	16
4.3.4 Proof of competence of pulling media.....	16
4.3.5 Proof of competence of hooks.....	17
4.4 Devices.....	18
4.4.1 Control devices.....	18
4.4.2 Pulling force limiter.....	19
4.4.3 Emergency stop function.....	21
4.4.4 Pay-out limiters.....	21
4.4.5 Safety-related functions.....	21
4.5 Couplings.....	22
4.6 Brakes for pulling and pay-out movements.....	22
4.7 Gearboxes.....	22
4.8 Hooks.....	23
4.9 Rope drive with steel wire ropes.....	23
4.10 Rope drive with synthetic materials.....	23
4.10.1 General.....	23
4.10.2 Rope sheaves for high tensile synthetic ropes.....	23
4.10.3 Rope guides/rope runs.....	23
4.10.4 Rope fastening onto the rope drum.....	23
4.10.5 Rope anchorage.....	23
4.10.6 Rope end terminations.....	24
4.11 Traction winches.....	24
4.12 Belt drives.....	24
4.13 Pneumatic equipment.....	24
4.13.1 General.....	24
4.13.2 Control devices/controls.....	25
4.13.3 Protective measures.....	25
4.14 Hydraulic equipment.....	25
4.14.1 General.....	25
4.14.2 Motors.....	26
4.14.3 Hoses and pipes.....	26
4.14.4 Cooler/heating.....	26
4.14.5 Accumulator.....	26
4.14.6 Filters.....	26
4.14.7 Control devices/controls.....	26
4.14.8 Protective measure.....	26

4.15	Electrical equipment of winches	27
4.15.1	General	27
4.15.2	Electrical supply	27
4.15.3	Ambient and operating conditions	27
4.15.4	Supply disconnecting and switching devices	27
4.15.5	Communications network	27
4.15.6	Overload protection of motors	28
4.15.7	Emergency stop function	28
4.15.8	Cableless control	28
4.15.9	Electromagnetic compatibility	28
4.15.10	Cybersecurity	28
4.16	Electric motors	28
4.16.1	General	28
4.16.2	Degrees of protection	29
4.17	Electric motion limiters	29
4.17.1	General	29
4.17.2	Temperature	29
4.18	Reduction of noise by design	29
4.18.1	General	29
4.18.2	Main noise sources on winch units	29
4.18.3	Measures for noise reduction at source	30
4.18.4	Protective measures	30
4.19	Additional requirements for vehicle recovery winches and winches on boat trailers	30
4.19.1	General	30
4.19.2	Motion limiters	30
4.19.3	Auxiliary brake	30
4.19.4	Rope drives	30
4.19.5	Electrical supply	31
5	Verification of the safety requirements and/or protective measures	31
5.1	Winches manufactured in series	31
5.2	Winches designed individually	32
6	User information	40
6.1	General	40
6.2	Special requirements	40
6.3	Marking	42
Annex A	(informative) List of significant hazards	44
Annex B	(informative) Additional requirements for operation in aggressive environments and outdoors	48
B.1	General	48
B.2	Ropes	48
Annex C	(informative) Additional requirements for operation at low temperatures	50
Annex D	(normative) Noise test code	51
D.1	Scope	51
D.2	General	51
D.3	Determination of the emission sound pressure level at the operator's position by measurement	51
D.3.1	General	51

prEN 14492-1:2026 (E)

D.3.2	Measurement for winches.....	51
D.4	Determination of the sound power level.....	52
D.4.1	General.....	52
D.4.2	Measurement.....	52
D.5	Mounting and operating conditions.....	52
D.5.1	General.....	52
D.5.2	Operating conditions.....	52
D.6	Uncertainties.....	52
D.7	Information to be recorded.....	53
D.8	Information to be reported.....	53
D.9	Declaration and verification of noise emission values.....	53
Annex E	(normative) Power driven series winch mechanisms — Test procedure for verification of the classification.....	54
E.1	Introduction.....	54
E.2	Application.....	54
E.3	Implementation of the test.....	54
E.3.1	Framework conditions.....	54
E.3.2	Configurations.....	55
E.3.3	Test program.....	56
E.4	Acceptance criteria.....	58
E.5	Determination of load variation factor according to reeving.....	59
Annex F	(informative) Conversion of classification for winches which are classified according to previous standards.....	61
Annex G	(informative) Overview of standards published by CEN/TC 147.....	63
G.1	General.....	63
G.2	Selecting a suitable standard.....	63
Annex H	(informative) Examples of winches.....	65
H.1	General.....	65
H.2	Drum winches.....	65
H.3	Traction winches.....	66
H.4	Vehicle recovery winches.....	68
H.5	Winches for boat trailers.....	68
Annex ZA	(informative) Relationship between this document and the essential requirements of Regulation (EU) 2023/1230 aimed to be covered.....	69

Figures

Figure 1	— Undercut groove base profile.....	24
----------	-------------------------------------	----

Figure E.1 — Opposed winding arrangement.....	55
Figure E.2 — Symmetrical rope lead-off about the drum centre	56
Figure E.3 — Normal operation during the test (Cycle I)	58
Figure E.4 — Every 16th pick up from the floor at rated pulling speed, if possible (Cycle II)	58
Figure H.1 — Drum winch, manufactured in series	65
Figure H.2 — Drum winch, manufactured individually	65
Figure H.3 — Drum winch, pneumatically driven.....	66
Figure H.4 — Traction winch, standard type	66
Figure H.5 — Traction winch with 2 load bearing ropes and storage drum	66
Figure H.6 — Traction winch with a rope storage	66
Figure H.7 — Traction winch.....	67
Figure H.8 — Traction winch with storage drum.....	67
Figure H.9 — Vehicle recovery winch with electrical drive.....	68
Figure H.10 — Vehicle recovery winch with hydraulic drive	68
Figure H.11 — Winch for boat trailers with electrical drive.....	68
Tables	
Table 1 — Classification of winches by number of pulling cycles	14
Table 2 — Classification of winches by pulling distance	14
Table 3 — Typical values of parameters for proof of competence of ropes	16
Table 4 — design factor of synthetic rope by classification of winch	17
Table 5 — Force history parameter for Formula (3)	18
Table 6 — Methods to be used to verify conformity with the safety requirements and/or measures.....	33
Table A.1 — List of significant hazards and associated requirements	44
Table F.1 — Table of max load path [P] during test according to previous standards.....	61
Table G.1 — Product standards for lifting machinery	63
Table G.2 — Subject specific and component specific standards	64

prEN 14492-1:2026 (E)

European foreword

This document has been prepared by Technical Committee CEN/TC 147 “Cranes – Safety”, the secretariat of which is held by SFS.

This document will supersede EN 14492-1:2006+A1:2009.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

This is the first part of the standard “Cranes — Power driven winches and hoists”. The parts of the standard are:

- *Part 1: Power driven winches [the present document]*
- *Part 2: Power driven hoists*

For the relationship with other European Standards for cranes, see informative Annex G.

CEN/TC 147 WG17 has reviewed EN 14492-1:2006+A1:2009 to adapt the standard to the technical progress, new requirements and changes in standards referenced; the main topics are:

- winches are re-defined as: “machine designed for the movement or manipulation of a load supported on level or inclined planes using a pulling medium (e.g. rope or chain) and winding mechanism”;
- the scope will exclude forestry winches which are covered by EN ISO 19472-1;
- the scope will clarify that internal combustion motor as prime mover are not covered;
- the design and calculation reference to EN 13001-1, EN 13001-2 and EN 13001-3-1. The design according to the FEM-documents: FEM 1.001, FEM 9.901 does not apply any longer;
- the design and calculation to ISO 16625:2025 is incorporated. The standards ISO 4308-1:2003, 5.7 Rope drives does not apply any longer;
- the design and calculation to EN 13001-3-5:2025 “Hook” is in-cooperated;
- the EN 14492-1 references to FprEN 13135:2026²;
- new requirements for the use of high-tensile synthetic ropes;
- new requirements for cyber-security;
- new requirements for cable-less controls;
- new requirements for electromagnetic compatibility (EMC);
- a guidance of relationships between the FEM and ISO-Classification (Winch Classification) and the new Classification in accordance with EN 13001 series is added; see Annex G.

Introduction

This document is a harmonized standard to provide one means for power driven winches to conform to the essential health and safety requirements of the EU Regulation 2023/1230 (Machinery). The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this document.

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

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

- machine manufacturers (small, medium and large enterprises);
- health and safety bodies (regulators, accident prevention organizations, market surveillance etc.).

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

- machine users/employers (small, medium and large enterprises);
- machine users/employees (e.g. trade unions, organizations for people with special needs);
- service providers, e.g. for maintenance (small, medium and large enterprises);
- consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document. The machinery concerned and the extent to which hazards, hazardous situations or hazardous events are covered are indicated in the Scope of this document.

When requirements of this type-C standard are different from those which are stated in type-A or type-B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

prEN 14492-1:2026 (E)

1 Scope

This document is applicable to the design, information for use, maintenance and testing of power-driven winches for which the prime mover is an electric motor, hydraulic motor, or pneumatic motor. Winches are designed for the movement or manipulation of loads supported on level or inclined planes in situations where risks resulting from a failure of the winding mechanism or pulling medium are mitigated by external measures.

This document is not applicable to devices which handle suspended loads.

Generally, a winch is used without any additional transport movement, except in cases where a winch is used on a stranded vehicle for self-recovery of the vehicle.

Applications of winches covered are for example, but not limited to:

- a) rope winches;
- b) belt winches, except steel belts used as pulling media;
- c) traction winches, including double capstan and traction sheave winches.

These types of winches a) to c) also include the following specific applications:

- vehicle recovery winches;
- winches for boat trailers;
- winches for stationary offshore applications.

NOTE Examples are shown in Annex H.

This document does not apply to:

- power-driven hoists in accordance with EN 14492-2;
- forestry winches in accordance with EN ISO 19472-1;
- winches for seagoing vessels and mobile offshore units;
- winches for the lifting of persons;
- NGL building hoists in accordance with EN 14492-2;
- winches for the handling of hot molten masses.

This document deals with the significant hazards, hazardous situations or hazardous events relevant to power driven winches when used as intended and under conditions of misuse which are reasonably foreseeable, identified in Annex A.

This document does not specify additional requirements for hazards related to the use of power driven winches in explosive atmospheres in underground mines.

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 12077-2:2024, *Cranes safety — Requirements for health and safety — Part 2: Limiting and indicating devices*

EN 13001-1:2015, *Cranes — General design — Part 1: General principles and requirements*

EN 13001-2:2021, *Crane safety — General design — Part 2: Load actions*

EN 13001-3-1:2025, *Cranes — General Design — Part 3-1: Limit States and proof competence of steel structure*

EN 13001-3-5:2025, *Cranes — General design — Part 3-5: Limit states and proof of competence of forged and cast hooks*

FprEN 13135:2026,¹ *Cranes — Safety — Requirements for equipment*

EN 13557:2024, *Cranes — Control devices and control stations*

EN 60529:1991,² *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

EN 61000-6-7:2015, *Electromagnetic compatibility (EMC) — Part 6-7: Generic standards — Immunity requirements for equipment intended to perform functions in a safety-related system (functional safety) in industrial locations (IEC 61000-6-7:2014)*

EN 62745:2017,³ *Safety of machinery — Requirements for cableless control systems of machinery (IEC 62745:2017)*

EN ISO 3744:2010, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Engineering methods for an essentially free field over a reflecting plane (ISO 3744:2010)*

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 4871:2009, *Acoustics — Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*

EN ISO 7010:2020,⁴ *Graphical symbols — Safety colours and safety signs — Registered safety signs (ISO 7010:2019)*

EN ISO 11201:2010, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections (ISO 11201:2010)*

¹ Under preparation on CEN/TC 147/WG 3.

² As impacted by EN 60529:1991/A1:2000, EN 60529:1991/A2:2013 and EN 60529:1991/A2:2013/AC:2019-02, EN 60529:1991/AC:2016-12 and EN 60529:1991/corrigendum May 1993.

³ As impacted by EN 62745:2017/A11:2020.

⁴ As impacted by EN ISO 7010:2020/A1:2020; EN ISO 7010:2020/A2:2022; EN ISO 7010:2020/A3:2022; EN ISO 7010:2020/A4:2023; EN ISO 7010:2020/A5:2023; EN ISO 7010:2020/A6:2023; EN ISO 7010:2020/A7:2024; EN ISO 7010/A8:2024.

prEN 14492-1:2026 (E)

EN ISO 11688-1:2009, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning (ISO/TR 11688-1:1995)*

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

EN ISO 13849-1:2023, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2023)*

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

EN ISO 20607:2019, *Safety of machinery — Instruction handbook — General drafting principles (ISO 20607:2019)*

EN IEC 60034-5:2020,⁵ *Rotating electrical machines — Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code) Classification (IEC 60034-5:2020)*

EN IEC 60204-32:2025, *Safety of machinery — Electrical equipment of machines — Part 32: Requirements for hoisting machines (IEC 60204-32:2023)*

EN IEC 61000-6-2:2019, *Electromagnetic compatibility (EMC) — Part 6-2: Generic standards — Immunity for industrial environments (IEC 61000-6-2:2016)*

EN IEC 61000-6-4:2019, *Electromagnetic compatibility (EMC) — Part 6-4: Generic standards — Emission standard for industrial environments (IEC 61000-6-4:2018)*

EN IEC 61800-3:2023,⁶ *Adjustable speed electrical power drive systems — Part 3: EMC requirements and specific test methods for PDS and machine tools (IEC 61800-3:2022)*

EN IEC 62443-3-3:2019,⁷ *Industrial communication networks — Network and system security — Part 3-3: System security requirements and security levels (IEC 62443-3-3:2013)*

EN IEC 62443-4-2:2019,⁸ *Security for industrial automation and control systems — Part 4-2: Technical security requirements for IACS components (IEC 62443-4-2:2019)*

ISO 3864-2:2016, *Graphical symbols — Safety colours and safety signs — Part 2: Design principles for product safety labels*

ISO 12482:2014, *Cranes — Monitoring for crane design working period*

ISO 16625:2025, *Cranes and hoists — Selection of wire ropes, drums and sheaves*

⁵ As impacted by EN IEC 60034-5:2020/AC:2024-01.

⁶ As impacted by EN IEC 61800-3:2023/AC:2025-04.

⁷ As impacted by EN IEC 62443-3-3:2019/AC:2019-10.

⁸ As impacted by EN IEC 62443-4-2:2019/AC:2022-09.

3 Terms and definitions

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

ISO and IEC maintain terminology 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

winch

machine which is designed for the movement or manipulation of loads supported on level or inclined planes in situations where risks resulting from a failure of the winding mechanism or pulling medium are mitigated by external measures

Note 1 to entry: Machines handling suspended loads are excluded.

Note 2 to entry: Examples are given in Annex H.

3.2

anchorage

complete device to anchor the pulling media to a fixed point

3.3

belt drive

system of belts, belt pulleys, belt drums and belt anchorages

3.4

direct control

main power supply to the winch is directly controlled by a hand-controlled actuator without additional means between the actuator and the main power circuit

3.5

hydraulic component

element (e.g. valve, filter) interconnected and forming an operational hydraulic system

3.6

hydraulic overpressure

pressure exceeding the rated pressure

3.7

hydraulic system

fluid power system, where power is transmitted and controlled through a fluid (relates only to hydraulic technology) under pressure within a circuit

3.8

indirect control

main power supply to the winch is not directly controlled by a hand-controlled actuator but uses additional means between the hand-controlled actuator and the main power circuit

prEN 14492-1:2026 (E)**3.9****raising****lowering**

movement of the load supported on an inclined plane which results in a change to its horizontal and vertical position

3.10**maximum speed**

maximum speed of the pulling medium which can be achieved by the winch

3.11**power source**

provider of the energy to drive the prime mover of a winch is either electrical, hydraulic, pneumatic

3.12**pulling**

moving of loads supported on level planes where the removal of the pulling force or a failure of the pulling mechanism or pulling medium results either in no movement of the load, or a movement that cannot result in a significant hazard

3.13**pulling medium**

part of the winch by which the drive mechanism of the winch is connected to the load

3.14**pulling force limiter**

device that automatically prevents the winch from pulling loads in excess of its maximum pulling force, considering the dynamic effects occurring during normal operational use

3.15**required maximum pressure**

maximum required pressure in hydraulic or pneumatic systems at which the component is intended to operate for a number of repetitions to assure service life and achieving the specified maximum performance data

3.16**rated pulling force**

$$F_{RP}$$

maximum force the winch is designed to operate at rated speed; in the case of winches with multi-layer winding, this is the value on the bottom layer of the drum

3.17**rated speed**

linear speed of the pulling medium when pulling at rated pulling force - of the winch; in the case of winches with multi-layer winding, this is the value on the bottom layer of the drum:

- in case of electric motors, the rated voltage and rated frequency applies;
- in case of hydraulic motors, the rated flow applies;
- in case of pneumatic motors, the rated pressure applies

3.18**rope anchorage**

arrangement comprising the parts which connect the rope termination to the major load bearing structure

EXAMPLE Pins, bolts, compensating levers, tension rods.

3.19**rope drive**

system of ropes running on rope drums or traction sheaves and over rope sheaves, and rope attachment parts

3.20**rope end termination**

arrangement that has direct contact with the rope in order to allow its connection to e.g. rope anchorage and hook

3.21**rope fastening onto the rope drum**

all parts with which the rope is fastened onto the rope drum

3.22**traction winch**

winch where a rope is not stored on a drum but passes through a rope drive in order to achieve the necessary traction required for rated pulling force

3.23**vehicle recovery winch**

winch installed on a vehicle or a trailer for the purpose of self-recovery, recovery and loading and unloading of inoperative and operational vehicles, machinery, caravans and boats onto the carrying platform or other supporting structures

3.24**winch for a boat trailer**

winch fitted to a boat trailer and used for lowering the boat from the trailer into the water, or pulling the boat out of the water onto the trailer

3.25**working coefficient**

ratio of the minimum breaking force of the pulling medium divided by the rated pulling force

3.26**maximum pulling force**

F_{\max}
force which can be achieved by the winch when the pulling force limiter is triggered which, in the case of winches with multi-layer winding, is the value on the bottom layer of the drum

3.27**design factor**

ratio between the minimum breaking force of the pulling medium divided by the maximum pulling force

3.28**working cycle**

for the purpose of classification, a working cycle is a sequence of movements which commences when the winch is ready to pull the load and ends when the winch is ready to pull the next load