



SLOVENSKI STANDARD
oSIST prEN 12999:2026
01-julij-2026

Dvigala - Nakladalna dvigala

Cranes - Loader cranes

Krane - Ladekrane

Appareils de levage à charge suspendue - Grues de chargement

Ta slovenski standard je istoveten z: prEN 12999

ICS:

53.020.20 Dvigala Cranes

oSIST prEN 12999:2026 **en,fr,de**

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 12999

July 2026

ICS 53.020.20

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Cranes - Loader cranes

Appareils de levage à charge suspendue - Grues de
chargement

Krane - Ladekrane

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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prEN 12999:2026 (E)**European foreword**

This document prEN 12999:2026 has been prepared by Technical Committee CEN/TC 147 “Cranes - Safety”, the secretariat of which is held by SFS.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12999:2020+A1:2025.

prEN 12999:2026 includes the following significant technical change with respect to EN 12999:2020+A1:2025:

— addressing the risk of data corruption, see 5.7.

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.

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Introduction

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.

The machinery concerned and the extent to which hazards are covered are indicated in the scope of this document.

prEN 12999:2026 (E)**1 Scope**

This document specifies requirements for design, calculation, examinations and tests of hydraulic powered loader cranes and their mountings on vehicles or static foundations.

This document applies to loader cranes designed to be installed on:

- road vehicles, including trailers, with load carrying capability;
- tractors (road or agricultural), where only a towed trailer has capability to carry goods;
- demountable bodies to be carried by any of the above;
- other types of carriers (e.g. separate loaders, crawlers, rail vehicles, non-seagoing vessels);
- static foundations.

NOTE 1 A demountable body is a detachable frame designed to be carried by a vehicle or trailer.

NOTE 2 A separate loader is a vehicle, with no load carrying capacity, equipped with a loader crane and designed to load or unload other vehicles and trailers.

This document also applies to loader cranes equipped with special tools or interchangeable equipment (e.g. grapple, clamshell bucket, pallet clamp, etc.), as specified in the operator's manual.

This document does not apply to loader cranes used on board sea going vessels or to articulated boom system cranes which are designed as total integral parts of special equipment such as forwarders.

The hazards covered by this document are identified in Clause 4.

This document does not cover hazards related to the lifting of persons.

NOTE 3 The use of cranes for lifting of persons can be subject to specific national regulations.

This document is not applicable to loader cranes manufactured before the publication of this document. For loader cranes designed before the publication of this document, the provisions concerning stress calculations in the version of EN 12999 that was valid at the time of their design, are still 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.

NOTE In the event of conflicting statements between referenced documents and this document, the statements in this document apply.

EN 1677-2:2000+A1:2008, *Components for slings — Safety — Part 2: Forged steel lifting hooks with latch, Grade 8*

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

EN 14492-2:2019, *Cranes — Power driven winches and hoists — Part 2: Power driven hoists*

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 13001-3-2:2014, *Cranes — General design — Part 3-2: Limit states and proof of competence of wire ropes in reeving systems*
- EN 13001-3-5:2025, *Cranes — General design — Part 3-5: Limit states and proof of competence of forged and cast hooks*
- EN 13001-3-6:2026, *Cranes — General design — Part 3-6: Limit states and proof of competence of machinery — Hydraulic cylinders*
- EN 13135:2013+A1:2018, *Cranes — Safety — Design — Requirements for equipment*
- EN 13557:2024, *Cranes — Control devices and control stations*
- EN 13586:2020, *Cranes — Access*
- EN 14033-2:2017, *Railway applications — Track — Railbound construction and maintenance machines — Part 2: Technical requirements for travelling and working*
- EN IEC 61000-6-2:2019, *Electromagnetic compatibility (EMC) — Part 6-2: Generic standards — Immunity standard 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 60204-32:2008, *Safety of machinery — Electrical equipment of machines — Part 32: Requirements for hoisting machines (IEC 60204-32:2008)*
- EN 62745:2017, *Safety of machinery — Requirements for cableless control systems of machinery*
- EN 62745:2017/A11:2020, *Safety of machinery — Requirements for cableless control systems of machinery*
- EN ISO 898-1:2013, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs with specified property classes — Coarse thread and fine pitch thread (ISO 898-1:2013)*
- EN ISO 898-1:2013/AC:2013, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs with specified property classes — Coarse thread and fine pitch thread — Technical Corrigendum 1 (ISO 898-1:2013/Cor 1:2013)*
- EN ISO 3744:2026, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Engineering methods for an essentially free field over a reflecting plane (ISO 3744:2025, including corrected version 2026-01)*
- EN ISO 4413:2010, *Hydraulic fluid power — General rules and safety requirements for systems and their components (ISO 4413:2010)*
- EN ISO 5353:1998, *Earth-moving machinery, and tractors and machinery for agriculture and forestry — Seat index point (ISO 5353:1995)*
- EN ISO 6892-1:2019, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature (ISO 6892-1:2019)*

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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)*

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

EN ISO 13854:2019, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body (ISO 13854:2017)*

EN ISO 13857:2019, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2019)*

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

3 Terms, definitions and abbreviations

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

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

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

3.1 Loader crane

3.1.1

loader crane

power driven hoisting mechanism comprising a column, which slews about a base, and a boom system which is attached on to the top of the column and being designed for loading and unloading vehicles

Note 1 to entry: Annex A gives examples of configuration and mountings.

3.1.2

self-powered loader crane

loader crane that has power source and hydraulic pump as integral parts of the machine

3.1.3

timber handling crane

loader crane specifically designed, manufactured and equipped with a grapple for loading/unloading of unprepared timber (e.g. tree trunks, branches)

3.2 Components

3.2.1

base

housing incorporating anchoring points and bearings for the slewing column

3.2.2

boom

structural member in the articulated system of the loader crane

3.2.3

manual boom extension

part of the articulated system which can be manually attached or manually extended to increase the outreach of the articulated system

3.2.4

boom system

complete system, consisting of booms, boom extensions and cylinders

3.2.5

column

structural member which supports the boom system

3.2.6

control system

interface between the operating levers and the actuating components which provide movements of the loader crane

3.2.7

control station

position from which the loader crane may be operated

3.2.8

high seat

control station connected to the column, consequently rotating with the crane

3.2.9

hoist

machines for lifting and lowering suspended loads over predetermined distances, using ropes, chains or belts

3.2.10

raised control station

control station that cannot be reached from the ground level, i.e. a high seat attached to the column of the loader crane or a platform positioned above the base of the loader crane

Note 1 to entry: See Annex J.

3.2.11

stabilizer

aid to the supporting structure connected to the base of the crane or to the vehicle to provide stability, without lifting the vehicle from the ground

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3.2.12

stabilizer extension

part of the stabilizer capable of extending the stabilizer leg laterally from the transport position to the operating position

3.2.13

stabilizer leg

part of a stabilizer capable of contacting the ground to provide the required stability

3.2.14

static foundation

fixed support incorporating mounting points for a crane

3.2.15

crane cabin

cabin attached to the crane, designed to operate the crane

3.2.16

vehicle cabin

cabin being part of the vehicle, mainly designed to operate the vehicle

3.2.17

leg tilting device

powered device that enables rotating the stabilizer leg to a raised position

3.2.18

stabilizer control station

position from which the stabilizers can be operated

3.3 Hydraulics

3.3.1

current working pressure

working pressure acting on the piston area, giving the same resultant force as the actual pressures acting on both sides of the piston, and that corresponds to the rated capacity at any time

3.3.2

hydraulic line rupture

failure of a hydraulic line which results in a loss of pressure in the line

3.3.3

maximum working pressure

maximum pressure in pump circuit or individual working function

3.3.4

sink rate

distance in a given time at which the load lowers due to internal leakage of hydraulic components

3.3.5

stability test pressure

equivalent pressure acting on the piston area of the 1st boom cylinder, used for stability testing and giving the same resultant force as the actual pressures acting on both sides of the piston

3.4 Kinematics

3.4.1

crane inclination

angle between the slewing axis and a vertical line, due to working on slanted or uneven ground

3.4.2

lifting movement

raising or lowering of the boom system and/or the load which causes a change in its vertical position

3.4.3

maximum outreach

largest outreach shown on the load chart

3.4.4

outreach

horizontal distance between the axis of rotation of the column and point of load attachment

3.4.5

hydraulic outreach

outreach which can be obtained with hydraulically actuated parts of the boom system

3.4.6

slewing

rotational movement of the column and boom system about the axis of the column

3.5 Loads

3.5.1

dead load

force due to masses of fixed and movable crane parts which act permanently on the structure while the crane is being used

3.5.2

gross load

sum of payload, lifting attachments and if applicable a portion of the hoist rope

3.5.3

maximum working load

maximum load that may be lifted shown on the load plate

3.5.4

payload

load which is lifted by the crane and suspended from the non-fixed load-lifting attachment(s) or, if such an attachment is not used, directly from the fixed load lifting attachment(s)

3.5.5

rated capacity

load that the crane is designed to lift for a given operating condition (e.g. configuration, position of the load)

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3.5.6

rated capacity indicator

device which gives, within tolerance limits specified in 5.6.2.1, at least a continuous indication that the rated capacity is exceeded, and another continuous indication (on certain crane types) of the approach to the rated capacity

3.5.7

rated capacity limiter

system that automatically prevents the crane from handling loads in excess of its rated capacity (see also C.1)

3.6 Moments

3.6.1

net lifting moment

rated capacity multiplied by outreach

3.6.2

total lifting moment

sum of net lifting moment and the moment produced by dead loads

3.7 Valves

3.7.1

load holding valve

valve which is normally closed and is opened by an external force to enable flow of fluid out of a hydraulic actuator

3.7.2

main relief valve

valve which limits the pressure supplied to the hydraulic system of the crane

3.7.3

port relief valve

valve which limits the pressure supplied to a hydraulic actuator

3.7.4

pressure relief valve

valve which automatically relieves the hydraulic oil to the tank when the pressure exceeds a specified value

3.8 Miscellaneous

3.8.1

hazard zone

danger zone

any space within and/or around machinery in which a person can be exposed to a hazard

[SOURCE: EN ISO 12100:2010, 3.11]

3.8.2

setting-up function

crane function used to prepare the crane for lifting

3.8.3**vessel**

floating installation that the crane is mounted on

3.9 Illustration of parts

The terms which are used in this document for the main parts of a loader crane are indicated in Figure 1 a) and b).

Boom system consists of items 6 to 12 plus items 16 to 22, if applicable.

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