



SLOVENSKI STANDARD

SIST EN 12999:2020+A1:2025

01-junij-2025

Žerjavi - Nakladalni žerjavi

Cranes - Loader cranes

Krane - Ladekrane

Appareils de levage à charge suspendue - Grues de chargement

Ta slovenski standard je istoveten z: EN 12999:2020+A1:2025

ICS:

53.020.20 Dvigala

[SIST EN 12999:2020+A1:2025](https://standards.sist.eu/standards/sist/ecd3bae1-0a1-0a1-0a1-0a1/sist-en-12999-2020a1-2025)

Cranes

SIST EN 12999:2020+A1:2025

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12999:2020+A1

March 2025

ICS 53.020.20

Supersedes EN 12999:2020

English Version

Cranes - Loader cranes

Appareils de levage à charge suspendue - Grues de
chargement

Krane - Ladekrane

This European Standard was approved by CEN on 10 August 2020 and includes Amendment 1 approved by CEN on 20 January 2025.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists 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.

SIST EN 12999:2020+A1:2025

<https://standards.iteh.ai/catalog/standards/sist/ecd3bae1-0add-4e31-b286-da9f66c92930/sist-en-12999-2020a1-2025>



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

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

Contents	Page
European foreword.....	6
Introduction	7
1 Scope	8
2 Normative references.....	8
3 Terms, definitions, illustration of parts and abbreviated terms	10
3.1 Terms and definitions	10
3.1.1 Loader crane	10
3.1.2 Components	11
3.1.3 Hydraulics.....	13
3.1.4 Kinematics	13
3.1.5 Loads.....	14
3.1.6 Moments.....	14
3.1.7 Valves.....	15
3.1.8 Miscellaneous.....	15
3.2 Illustration of parts	15
3.3 Abbreviated terms	17
4 List of significant hazards	17
5 Safety requirements and/or protective/risk reduction measures.....	20
5.1 General.....	20
5.2 Structural calculation	20
5.2.1 Information to be given in the calculation	20
5.2.2 Dynamic factors	21
5.2.3 Loads and forces.....	23
5.2.4 Load combinations	25
5.3 Stress analysis	26
5.3.1 General.....	26
5.3.2 Bolted connections	27
5.4 Mechanical arrangements.....	27
5.4.1 Stabilizers	27
5.4.2 Manual boom extensions.....	28
5.4.3 Securing for transport	28
5.4.4 Hoists.....	29
5.4.5 Load hooks.....	29
5.5 Hydraulic system.....	29
5.5.1 General.....	29
5.5.2 Pump.....	29
5.5.3 Hydraulic reservoir	30
5.5.4 Pressure limiting device	30
5.5.5 Hoses, tubes and fittings.....	30
5.5.6 Precautions against hydraulic line rupture	30
5.5.7 Sink rate for boom system	31
5.5.8 Slewing mechanism	31
5.6 Limiting and indicating devices	31
5.6.1 General.....	31
5.6.2 Rated capacity limiter	34
5.6.3 Lowering facility.....	34

5.6.4	Rated capacity indicators	34
5.6.5	Limiters	35
5.6.6	Operational warning	35
5.6.7	Acoustic warning	35
5.6.8	Stopping device	35
5.7	Controls	36
5.7.1	General	36
5.7.2	Symbols	36
5.7.3	Layout of bi-directional controls	37
5.7.4	Guidance for high seat controls	37
5.8	Control stations	37
5.8.1	General	37
5.8.2	Raised control stations	39
5.9	Electrical systems	40
5.9.1	General	40
5.9.2	Electromagnetic compatibility	40
5.10	Installation	40
5.10.1	General	40
5.10.2	Mounting	40
5.10.3	Stability	41
5.10.4	Noise	42
5.10.5	Vibrations	42
5.10.6	Electrical systems (installation)	42
5.10.7	Hydraulic components	42
5.10.8	Access	42
6	Verification of the safety requirements and/or protective/risk reduction measures	43
6.1	General	43
6.2	Testing and test procedures	48
6.2.1	General	48
6.2.2	Functional test	48
6.2.3	Static test	48
6.2.4	Dynamic test	49
6.2.5	Stability test	49
6.2.6	Test documentation	52
6.2.7	 Documentation of variable rated capacity 	52
6.3	Noise emission measurement	53
7	Information for use	53
7.1	General	53
7.2	Instructions	53
7.2.1	Provision of instructions	53
7.2.2	Instructions for the installer	53
7.2.3	Instructions for use	54
7.2.4	Maintenance instructions	56
7.3	Marking	56
7.3.1	General	56
7.3.2	Manufacturer's plate	56
7.3.3	Installer's plate	56
7.3.4	Load signs	57
7.3.5	Special signs on timber handling cranes	62
7.3.6	Marking of slewing centre	64
7.3.7	Marking of maximum ground load	64
7.3.8	Marking for high seat	64

EN 12999:2020+A1:2025 (E)

Annex A (informative) Examples of configurations and mountings	65
A.1 Boom systems	65
A.1.1 Loader cranes with straight boom system	65
A.2 Examples of loader crane mountings	66
Annex B (informative) Stress history parameter s and stress history classes S	72
Annex C (informative) Explanatory notes	76
C.1 Rated capacity limiters	76
C.2 Safety functions of the rated capacity limiter	76
C.3 Timber handling cranes – Line rupture	77
C.4 Control stations	78
Annex D (informative) Examples of dangerous movements	79
Annex E (normative) Symbols for working and setting-up functions	81
Annex F (informative) Control system – Preferred vertical layout for controls operated from the ground	83
Annex G (informative) Control system – Horizontal layout order	85
Annex H (informative) Control levers for high seats and remote controls	88
H.1 High seat controls	88
H.1.1 Multidirectional (joy-stick) controls	88
H.1.2 Bi-directional controls	88
H.2 Remote controls	88
Annex I (normative) ▮_{A1} Crane cabins fitted on vehicle mounted loader cranes up to a net lifting moment of 250 kNm ▮_{A1}	91
Annex J (informative) Examples of raised control stations	94
Annex K (normative) Raised control stations – Measures regarding handrails and handholds, ladders and steps	97
Annex L (informative) Installation of a loader crane on a vehicle	100
L.1 General	100
L.2 Installation: minimum data	100
L.2.1 Crane dimensions in transport position: data	100
L.2.2 Crane data (see Figure L.2)	100
L.2.3 Mounting data	101
L.2.4 Power requirements	101
L.2.5 Stability calculations: data	101
L.3 Power take off (PTO) and pump displacement	102
L.4 Calculation method for determination of sub-frame dimensions	103
L.4.1 General considerations	103
L.4.2 Stresses	103

L.4.3 Strength calculation of sub-frame	103
Annex M (informative) Selection of a suitable set of crane standards for a given application	106
Annex ZA (informative) Relationship between this European Standard and the essential requirements of EU Directive 2006/42/EC aimed to be covered	108
Bibliography	112

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

SIST EN 12999:2020+A1:2025

<https://standards.iteh.ai/catalog/standards/sist/ecd3bae1-0add-4e31-b286-da9f66c92930/sist-en-12999-2020a1-2025>