



SLOVENSKI STANDARD
oSIST prEN 1009-1:2018
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**Stroji za mehansko obdelavo mineralov in podobnih trdnih snovi - Varnost - 1. del:
Splošne zahteve za nepopolno sestavljene stroje in predelovalne obrate**

Machines for mechanical processing of minerals and similar solid materials - Safety -
Part 1: Common requirements for partly completed machinery and processing plants

Maschinen für die mechanische Aufbereitung von Mineralien und ähnlichen festen
Stoffen - Sicherheit - Teil 1: Gemeinsame Anforderungen für unvollständige Maschinen,
Aufbereitungsmaschinen und Aufbereitungsanlagen

Machines pour le traitement mécanique des minéraux et des matériaux solides similaires
- Sécurité - Partie 1 : Prescriptions communes pour les quasi machines et installations
pour le traitement des matériaux

Ta slovenski standard je istoveten z: prEN 1009-1

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91.220	Gradbena oprema	Construction equipment

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Machines for mechanical processing of minerals and similar solid materials - Safety - Part 1: Common requirements for partly completed machinery and processing plants

Machines pour le traitement mécanique des minéraux et des matières solides similaires - Sécurité - Partie 1 : Prescriptions communes pour les quasi machines et installations pour le traitement

Maschinen für die mechanische Aufbereitung von Mineralien und ähnlichen festen Stoffen - Sicherheit - Teil 1: Gemeinsame Anforderungen für unvollständige Maschinen, Aufbereitungsmaschinen und Aufbereitungsanlagen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 151.

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Contents	Page
European foreword.....	5
Introduction	6
1 Scope.....	7
2 Normative references.....	8
3 Terms and definitions	9
4 List of significant hazards	10
5 Safety requirements and/or protective measures	25
5.1 General.....	25
5.2 Openings.....	25
5.2.1 Passage openings	25
5.2.2 Access openings	27
5.2.3 Visual inspection openings.....	27
5.3 Restricted areas.....	27
5.3.1 General.....	27
5.3.2 Prevention of enclosing of persons (lock out/tag-out procedure)	27
5.4 Permanent means of access	27
5.5 Control station and cabin.....	27
5.5.1 Main control station	27
5.5.2 Operator's control cabin.....	27
5.5.3 Manual sorting station	28
5.6 Storage equipment	28
5.6.1 General.....	28
5.6.2 Top of the storage equipment.....	28
5.6.3 Access to the silo.....	29
5.7 Dust removal devices.....	29
5.8 Visibility.....	30
5.8.1 Process survey.....	30
5.8.2 Lighting.....	30
5.9 Control devices.....	30
5.9.1 General.....	30
5.9.2 Main control station	30
5.9.3 Control devices for modular machinery.....	31
5.9.4 Emergency-stop devices	32
5.9.5 Remote controls.....	32
5.9.6 Warning sequence of automatic starts.....	32
5.9.7 Modes of Operation	32
5.10 Safeguarding	35
5.10.1 General.....	35
5.10.2 Mechanical drives like shafts, eccentrics, flywheels, pulleys, belts, chains and mechanical couplings, etc. fixed guards.....	35
5.10.3 Movable guards.....	35
5.10.4 Interlocking guards with or without guard locking	35
5.11 Access to the fixed enclosures by doors where parts are running (e.g. scrubber, ball mill).....	35
5.12 Electro-magnetic compatibility	36

5.13	Safety related parts of control systems	36
5.14	Hydraulics and pneumatics	38
5.15	Supports for service and maintenance	39
5.15.1	General	39
5.15.2	Mechanical supports.....	39
5.15.3	Pneumatics.....	39
5.16	Electrical equipment	39
5.16.1	General	39
5.16.2	Electrical cables.....	40
5.17	Lifting, tying down and transport.....	40
5.17.1	General	40
5.17.2	Design of attachment points for transportation purpose.....	40
5.17.3	Location of tying-down and lifting attachment points for transportation purpose.....	40
5.17.4	Identification of tying-down and lifting attachment points for transportation purpose.....	40
5.17.5	Other lifting attachment points for handling, erection and installation purposes of components, wear parts, motors or other sub-assemblies	41
5.18	Maintenance	41
5.18.1	General	41
5.18.2	Regular maintenance	42
5.18.3	Exceptional maintenance.....	42
5.19	Suspension units.....	42
5.20	Noise	42
5.20.1	Noise reduction as a safety requirement	42
5.20.2	Verification of requirements on noise based on noise emission values.....	43
5.21	Vibrations.....	43
5.21.1	Vibration reduction as a safety requirement	43
5.21.2	Vibration measurement	44
6	Verification of the safety requirements and/or protective measures	44
7	Information for use	47
7.1	General	47
7.2	Instruction handbook	47
7.2.1	General	47
7.2.2	Description of the machine	48
7.2.3	Instructions for transport, handling and storage of the machine and its dismantlable parts.....	48
7.2.4	Instructions for the installation and the use of the machine.....	48
7.2.5	Maintenance and inspection instructions	49
7.2.6	Spare parts list.....	50
7.3	Marking	50
7.4	Pictorials.....	51
7.5	Erection and transport instructions	51
7.5.1	Erection	51
7.5.2	Transport.....	51
7.6	Signals and warning devices.....	51
Annex A (informative)	Minimum passage opening	52
A.1	Passage of the body.....	52
Annex B (informative)	Examples for mechanical processing machines and terminology.....	53
B.1	Plant (See 3.1)	53
B.2	Modular machinery (See 3.3)	53

prEN 1009-1:2017 (E)

B.3	Mobile machine (see 3.2)	54
B.3.1	Mobile machine assembled	54
B.3.2	Mobile machine during movement	55
B.4	Handling systems	55
Annex C	(informative) Noise test code	57
C.1	Scope	57
C.2	A-Weighted emission sound pressure level determination	57
C.2.1	General	57
C.2.2	Uncertainty	59
C.3	Installation conditions	59
C.3.1	General	59
C.3.2	Feeder units	59
C.3.3	Screen units	59
C.3.4	Crusher units	59
C.3.5	Conveyors	59
C.4	Operating conditions	60
C.4.1	General	60
C.4.2	Fast Idle condition	60
C.4.3	Process condition	60
C.5	Information to be recorded	61
C.6	Information to be reported	61
C.7	Declaration of noise emission values	61
C.8	Practical instructions for making noise measurements in material processing plants (informative)	62
Annex ZA	(informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC aimed to be covered	71
Bibliography	72

European foreword

This document (prEN 1009-1:2017) has been prepared by Technical Committee CEN/TC 151 “Construction equipment and building material machines - Safety”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document has been prepared under a standardization request 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.

prEN 1009 “Machines for mechanical processing of minerals and similar solid materials — Safety” comprises the following parts:

Part 1: Common requirements for partly completed machinery and processing plants

Part 2: Specific requirements for feeding machinery and continuous handling equipment

Part 3: Specific requirements for crushing and milling machinery

Part 4: Specific requirements for screening machinery

Part 5: Specific requirements for cleaning, recycling and mud treatment machinery

Part 6: Specific requirements for mobile and semi-mobile crushing and screening equipment

[SIST EN 1009-1:2020](https://standards.iteh.ai/catalog/standards/sist/07054f51-4a8b-468e-a7e2-c043b5eedcbf/sist-en-1009-1-2020)

<https://standards.iteh.ai/catalog/standards/sist/07054f51-4a8b-468e-a7e2-c043b5eedcbf/sist-en-1009-1-2020>

prEN 1009-1:2017 (E)

Introduction

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

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of 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.

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[SIST EN 1009-1:2020](https://standards.iteh.ai/catalog/standards/sist/07054f51-4a8b-468e-a7e2-c043b5eedcbf/sist-en-1009-1-2020)

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1 Scope

Processing mineral and by-products (cement, lime and gypsum, sand and gravel, industrial minerals, metalliferous ore, production and demolition waste, slag handling, hard and soft rock aggregates, coal) in construction and surface mining.

It deals with the following types of individual machines for the mechanical processing of minerals and similar solid materials:

- feeding machinery as per part 2;
- crushing machinery as per part 3;
- milling machinery as per part 3;
- screening machinery as per part 4;
- machinery for cleaning, water recycling, sorting (other than screens) and mud treatment as per part 5;
- mobile and semi-mobile machinery as per part 6.

This part gives the common safety requirements for mechanical processing machines used for quarrying, recycling and processing mineral and by-products (cement, lime and gypsum, sand and gravel, industrial minerals, metalliferous ore, production and demolition waste, slag handling, hard and soft rock aggregates, coal) in construction and surface mining and is intended to be used in conjunction with one of the prEN 1009-2 to -6. These machine specific parts (prEN 1009-2 to -6) do not repeat the requirements from prEN 1009-1:2017, but add or replace the requirements for the machine type in question.

NOTE The requirements specified in this part of the standard are common to two or more types of machines for the mechanical processing of minerals and similar solid materials.

<https://www.cen.eu/standards/standards/1009-1-2017> Specific requirements in prEN 1009-2 to -6 take precedence over the respective requirements of prEN 1009-1:2017.

The standard also covers assemblies of two or more of the mentioned machines which function as an integrated whole. The machines included in the scope of this standard can be fixed, semi-mobile or mobile. The standard covers transportation, erection, commissioning, use and maintenance of single machines or combination of single machines.

This standard deals with significant hazards, common to the types of machines listed in this scope when they are used as intended and under conditions for misuse which are reasonably foreseeable by the manufacturer (see Clause 4) and to the hazards due to the combination of these machines and specifies the appropriate measures to eliminate or reduce the risks arising from the significant hazards.

1.1 Design relating to road traffic regulations is not covered by this standard.

1.2 This standard does not cover hazards arising from the use of the machines in potentially explosive atmospheres as well as from processing of explosive materials and risks related to electromagnetic compatibility.

1.3 This document is not applicable to machinery which are manufactured before the date of publication of this document by CEN.

prEN 1009-1:2017 (E)**2 Normative references**

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 360:2002, *Personal protective equipment against falls from a height — Retractable type fall arresters*

EN 361:2002, *Personal protective equipment against falls from a height — Full body harnesses*

EN 363:2008, *Personal fall protection equipment — Personal fall protection systems*

EN 547 (series), *Safety of machinery — Human body measurements*

EN 617:2001+A1:2010, *Continuous handling equipment and systems — Safety and EMC requirements for the equipment for the storage of bulk materials in silos, bunkers, bins and hoppers*

EN 795, *Personal fall protection equipment — Anchor devices*

EN 1005-2:2003+A1:2008, *Safety of machinery — Human physical performance — Part 2: Manual handling of machinery and component parts of machinery*

EN 1037:1995+A1:2008, *Safety of machinery — Prevention of unexpected start-up*

EN 12464-1, *Light and lighting — Lighting of work places — Part 1: indoor work places*

EN 14253:2003+A1:2007, *Mechanical vibration — Measurement and calculation of occupational exposure to whole-body vibration with reference to health — Practical guidance*

EN 14359:2017, *Gas-loaded accumulators for fluid power applications*

EN 60529, *Degrees of protection provided by enclosures (IP Code)* [20](https://standards.iteh.ai/catalog/standards/sist/07054f51-4a8b-468e-a7e2-c043b5eedcbf/sist-en-1009-1-2020)

<https://standards.iteh.ai/catalog/standards/sist/07054f51-4a8b-468e-a7e2-c043b5eedcbf/sist-en-1009-1-2020>

EN 61310-1, *Safety of machinery — Indication, marking and actuation — Part 1: Requirements for visual, acoustic and tactile signals*

EN 61310-2, *Safety of machinery — Indication, marking and actuation — Part 2: Requirements for marking (IEC 61310-2)*

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

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 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 11202:2010, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections (ISO 11202:2010)*

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

EN ISO 13855:2010, *Safety of machinery — Positioning of safeguards with respect to the approach speeds of parts of the human body (ISO 13855:2010)*

EN ISO 14119:2013, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection (ISO 14119:2013)*

EN ISO 14120:2015, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards (ISO 14120:2015)*

EN ISO 14122-1:2016, *Safety of machinery — Permanent means of access to machinery — Part 1: Choice of fixed means and general requirements of access (ISO 14122-1:2016)*

EN ISO 14122-2:2016, *Safety of machinery — Permanent means of access to machinery — Part 2: Working platforms and walkways (ISO 14122-2:2016)*

EN ISO 14122-3:2016, *Safety of machinery — Permanent means of access to machinery — Part 3: Stairs, stepladders and guard-rails (ISO 14122-3:2016)*

EN ISO 14122-4:2016, *Safety of machinery — Permanent means of access to machinery — Part 4: Fixed ladders (ISO 14122-4:2016)*

ISO 3864-1:2011, *Graphical symbols — Safety colours and safety signs — Part 1: Design principles for safety signs and safety markings*

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

ISO 3864-3:2012, *Graphical symbols — Safety colours and safety signs — Part 3: Design principles for graphical symbols for use in safety signs*

ISO 3864-4:2011, *Graphical symbols — Safety colours and safety signs — Part 4: Colorimetric and photometric properties of safety sign materials*

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

ISO 15817:2012, *Earth-moving machinery — Safety requirements for remote operator control systems*

3 Terms and definitions

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

prEN 1009-1:2017 (E)**3.1
plant**

assembly of machines and/or partly completed machinery and/or components for the mechanical processing of minerals, arranged and controlled so that they function as an integral whole

Note 1 to entry: A plant may be an assembly of machines in the sense of the Machinery Directive 2006/42/EC, or not.

**3.2
mobile machine**

crawler or wheel, self-propelled or trailed machine movable from a worksite to another or from a place to another on the same worksite

**3.3
modular machinery**

module or combination of modules having no tracks, wheels or ground anchorage and designed to be partly dismantled to be transportable

EXAMPLE Skid chassis. See Annex A.

**3.4
partly completed machinery**

single unit which is not intended to work alone but intended to be integrated in a modular machinery, a fixed plant or a mobile machine

**3.5
passage opening**

opening which allows the movement or the entry of a person's entire body (e.g. door, manhole)

**3.6
access opening**

opening through which a person can lean forward, reach forward, or extend the upper body, head, arm, hand, a finger or several fingers, leg or foot

**3.7
visual inspection opening**

opening where, due to design or size, only visual inspections are possible

**3.8
workspace**

volume allocated to one or more persons in the work system to complete the work task

**3.9
operator's station**

area from which an operator controls the travel and/or work functions of the machine

4 List of significant hazards

This clause contains all the significant hazards, hazardous situations and events common to the different types of machines in the scope and also the hazards due to the assembly of different machines into a plant, identified by risk assessments significant for this type of machinery and which require action to eliminate or reduce the risk.

NOTE Risks which apply to specific types of machines are specified in Clause 4 of part 2 to 4 of this standard

Table 1 — List of significant hazards

No. a	Hazard, hazardous situation or hazardous event	Origin	Clause/subclause of this document
1	Mechanical hazards due to:		
1.1	Crushing hazard	Design of fixation for transportation Location of fixation for transportation Identification of fixation for transportation Handling with lifting point Finger jam Absence of guard - Unprotected moving parts (e.g. engine fan, belts). Fixation for transportation Guards around the machine Hydraulic unit Interlocking guard Lifting point for disassembly and maintenance Material flow Mechanical and hydraulic support Mechanical support Moving part Overflow Side of warning sign and warning sign Burying Specific movable guard like hinged doors, hatches or hoods Unintentional start	5.17.2 5.17.3 5.17.4 5.17.5 5.19 5.10.2 5.17.1 5.11 5.14 5.10.4 5.18.3 5.18.1 5.15.1.1 5.15.2.1, 5.15.2.2 5.10.1, 5.10.3 5.3.1, 5.4 5.6.1, 5.6.2, 5.6.3 5.10.3 5.18.2
1.2	Shearing hazard	Design of fixation for transportation Location of fixation for transportation Identification of fixation for transportation Handling with lifting point	5.17.2 5.17.3 5.17.4

prEN 1009-1:2017 (E)

No. a	Hazard, hazardous situation or hazardous event	Origin	Clause/subclause of this document
			5.17.5
		Finger jam	5.19
		Absence of guard – Unprotected moving parts (e.g. engine fan, belts).	5.10.2
		Fixation for transportation	5.17.1
		Guards around the machine	5.11
		Interlocking guard	5.10.4
		Lifting point for disassembly and maintenance	5.18.3
		Material flow	5.18.1
		Mechanical and hydraulic support	5.15.1.1
		Mechanical support	5.15.2.1, 5.15.2.2
		Moving part	5.10.1, 5.10.3
		Overflow	5.3.1, 5.4
		Specific movable guard like hinged doors, hatches or hoods	5.10.3
		Unintentional start	5.18.2
1.3	Cutting or severing hazard	Design of fixation for transportation	5.17.2
		Location of fixation for transportation	5.17.3
		Identification of fixation for transportation	5.17.4
		Handling with lifting point	5.17.5
		Finger jam	5.19
		Absence of guard – Unprotected moving parts (e.g. engine fan, belts).	5.10.2
		Fixation for transportation	5.17.1
		Guards around the machine	5.11
		Interlocking guard	5.10.4
		Lifting point for disassembly and maintenance	5.18.3
		Material flow	5.18.1
		Mechanical and hydraulic support	5.15.1.1