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Maskiner til mekanisk behandling af mineraler og lignende faste stoffer – Sikkerhed – Del 1: Fælles krav til delvis komplette maskiner og forarbejdningsanlæg

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

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EUROPÄISCHE NORM

May 2020

ICS 73.120; 91.220

English Version

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

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

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

This European Standard was approved by CEN on 13 April 2020.

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.

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European foreword

This document ([EN 1009-1:2020](#)) 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 European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2020, and conflicting national standards shall be withdrawn at the latest by May 2022.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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.

This part of [EN 1009](#) is intended to be used in conjunction with at least one specific part [EN 1009-2](#) to [prEN 1009-6](#).

[EN 1009](#) “Machines for mechanical processing of minerals and similar solid materials — Safety” comprises the following parts:

- *Part 1: Common requirements for 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 machinery (in preparation)*

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: 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, Turkey and the United Kingdom.

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Introduction

This document is a type-C standard as stated in [EN ISO 12100](#).

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 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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Machines for mechanical processing of minerals and similar solid materials – Safety –

Part 1: Common requirements for machinery and processing plants

1 Scope

This document applies to machines for mechanical processing of minerals (cement, lime and gypsum, sand and gravel, industrial minerals, metalliferous ore and hard and soft rock aggregates, coal) and -products (slag and ashes, production and demolition waste) in construction and industry.

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

- feeding machinery in accordance with [EN 1009-2](#);
- crushing machinery in accordance with [EN 1009-3](#);
- milling machinery in accordance with [EN 1009-3](#);
- screening machinery in accordance with [EN 1009-4](#);
- machinery for cleaning, water recycling, sorting (other than screens) and mud treatment in accordance with [EN 1009-5](#);
- mobile machinery in accordance with [prEN 1009-6](#).

This document 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 parts [EN 1009-2](#) to [prEN 1009-6](#). These machine specific parts ([EN 1009-2](#) to [prEN 1009-6](#)) do not repeat the requirements from this document, but add or replace the requirements for the machine type in question.

NOTE 1 — The requirements specified in this part of [EN 1009](#) are common to two or more types of machines for the mechanical processing of minerals and similar solid materials.

Specific requirements in [EN 1009-2](#) to [prEN 1009-6](#) take precedence over the respective requirements of this document.

This document 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 document can be fixed, semi-mobile or mobile.

NOTE 2 — [prEN 1009-6](#) "Specific requirements for mobile and semi mobile equipment" is under preparation to cover specific requirements (e.g. mobility, braking, access, frequent transportation), including exceptions and additional requirements for mobile and semi mobile equipment. This means that mobile machines are not covered as long as EN 1009-6 is not published by CEN.

This document covers transportation, erection, commissioning, use and maintenance of single machines or combination of single machines.

This document 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

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by the manufacturer (see [Annex F](#)) 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.

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

This document does not cover:

- design relating to road traffic regulations;
- 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;
- specific hazards related to mobile machinery.

NOTE 3 — [EN ISO 13766-1](#) and [EN ISO 13766-2](#) specify test methods and acceptance criteria for evaluating the electromagnetic compatibility of all kinds of mobile construction machinery.

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

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 547-1:1996+A1:2008](#), *Safety of machinery — Human body measurements — Part 1: Principles for determining the dimensions required for openings for whole body access into machinery*

[EN 547-2:1996+A1:2008](#), *Safety of machinery — Human body measurements — Part 2: Principles for determining the dimensions required for access openings*

[EN 547-3:1996+A1:2008](#), *Safety of machinery — Human body measurements — Part 3: Anthropometric data*

[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 620:2002+A1:2011](#), *Continuous handling equipment and systems — Safety and EMC requirements for the equipment for the storage of bulk materials in silos, bunkers, bins and hoppers*¹⁾

[EN 795:2012](#), *Personal fall protection equipment — Anchor devices*

[EN 842:1996+A1:2008](#), *Safety of machinery — Visual danger signals — General requirements, design and testing*

[EN 894-1:1997+A1:2008](#), *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 1: General principles for human interactions with displays and control actuators*

[EN 894-3:2000+A1:2008](#), *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 3: Control actuators*

[EN 1005-1:2001+A1:2008](#), *Safety of machinery — Human physical performance — Part 1: Terms and definitions*

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

[EN 1005-3:2002+A1:2008](#), *Safety of machinery — Human physical performance — Part 3: Recommended force limits for machinery operation*

1) Under revision. Amendment to EN 1009-1:2020 is planned to update the reference to the new edition of EN 620.

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[EN 1005-4:2005+A1:2008](#), *Safety of machinery — Human physical performance — Part 4: Evaluation of working postures and movements in relation to machinery*

[EN 1005-5:2007](#), *Safety of machinery — Human physical performance — Part 5: Risk assessment for repetitive handling at high frequency*

[EN 12464-1:2011](#), *Light and lighting — Lighting of work places — Part 1: Indoor work places*

[EN 12464-2:2014](#), *Light and lighting — Lighting of work places — Part 2: Outdoor work places*

[EN 12600:2002](#), *Glass in building — Pendulum test — Impact test method and classification for flat glass*

[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 60204-1:2006](#), *Safety of machinery — Electrical equipment of machines — Part 1: General requirements*

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

[EN 61310-1:2008](#), *Safety of machinery — Indication, marking and actuation — Part 1: Requirements for visual, acoustic and tactile signals (IEC 61310-1:2007)*

[EN 61310-2:2008](#), *Safety of machinery — Indication, marking and actuation — Part 2: Requirements for marking (IEC 61310-2:2007)*

[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 7010:2020](#), *Graphical symbols — Safety colours and safety signs — Registered safety signs (ISO 7010:2019)*

[EN ISO 7731:2008](#), *Ergonomics — Danger signals for public and work areas — Auditory danger signals (ISO 7731:2003)*

[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 13849-1:2015](#), *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2015)*

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

2) This document is impacted by the amendments EN 60529:1991/A1:2000 and EN 60529:1991/A2:2013.

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[EN ISO 13851:2019](#), *Safety of machinery — Two-hand control devices — Principles for design and selection (ISO 13851:2019)*

[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 14118:2018](#), *Safety of machinery — Prevention of unexpected start-up (ISO 14118:2017)*

[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)*

[EN ISO 14123-1:2015](#), *Safety of machinery — Reduction of risks to health resulting from hazardous substances emitted by machinery — Part 1: Principles and specifications for machinery manufacturers (ISO 14123-1:2015)*

[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*

[ISO 7000:2019](#), *Graphical symbols for use on equipment — Registered symbols*