SLOVENSKI STANDARD
oSIST prEN 12418:2019

01-januar-2019

Rezalniki kamenja na gradbiščih - Varnost

Masonry and stone cutting-off machines for job site - Safety

Steintrennmaschinen für den Baustelleneinsatz - Sicherheit

Scies de chantier à tronçonner les matériaux - Sécurité

Ta slovenski standard je istoveten z: **prEN 12418**

ICS:

91.220	Gradbena oprema	Construction equipment

oSIST prEN 12418:2019 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 12418

October 2018

ICS 91.220

Will supersede EN 12418:2000+A1:2009

English Version

Masonry and stone cutting-off machines for job site - Safety

Scies de chantier à tronçonner les matériaux - Sécurité

Steintrennmaschinen für den Baustelleneinsatz - Sicherheit

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

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey 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

Contents

Page

European foreword

This document (prEN 12418:2018) 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 will supersede EN 12418:2000+A1:2009.

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.

Annex A is informative and contrains "List of significant hazards", Annex B is normative and contains "Noise test code - Grade 2 of accuracy", Annex C is normative and contains "Dimensions of the flanges for cutting-off diamond wheel", Annex D is normative and contains "Strength of guards - State of the art concerning the characteristics of guards used with cutting-off wheels ", Annex D is normative and contains "Pictograms“, Annex E is normative and contains "Verification of surface temperature”, Annex F is normative and contains "Vibration text code" and the Annex ZA is informative and contains "Relationship of this European Standard with EU Directives“; this document also contains a Bibliography.

The main differences between this document and EN 12418:2000+A1:2009 are as follows:

a) Normative references (Clause 2) revised and updated;

b) List of significant hazards revised and updated;

c) Requirements for design of the cutting-off wheel guard;

d) Requirements for warnings;

e) Requirements for Information for use;

f) Requirements for operator's instructions;

g) Requirements for noise test code;

h) Illustrations and pictograms updated.

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 in 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.

1 Scope

This document applies to transportable masonry and stone cutting-off machines stationary during work, principally used on job site building construction for cutting-off stones, other mineral construction materials and composite materials having at least one supporting surface. The power for the tool rotation is supplied by electrical or internal combustion prime motor. This document deals with all significant hazards pertinent to masonry and stone cutting-off machines for job site (see Clause 4), when they are used as intended and under the conditions foreseen by the manufacturer. This document specifies the appropriate technical measures to eliminate or reduce risks arising from the significant hazards.

These machines are designed for use with rotating diamond cutting-off wheels with a continuous rim and/or segmented rim according to prEN 13236:2017.

This document does not apply to:

— metal cutting-off machines;

— wood and timber sawing machines;

— machines with a feed or descent mechanism other than manual, or with a pedal;

— mobile machines on a trolley travelling on the ground;

— hand-held portable grinding and cutting-off machines;

— hand-held portable grinding and cutting-off machines mounted on a support to be used in a fixed position.

This document does not cover the operation of transportable masonry and stone cutting-off machines in potential explosive atmospheres.

This document covers electrical hazards making reference to relevant European Standards (see 4.3).

Those hazards that are relevant for all mechanical, electrical, hydraulic, pneumatic and other equipment of machinery and that are dealt with in standards for common use are not covered by this document. Reference to pertinent standards of this kind is made where such standards are applicable and so far necessary.

In this document, the masonry and stone cutting-off machines for job site construction are called: "cutting-off machines" or "machines", and cutting-off wheels are also called: "tools".

This document applies primarily to machines which are manufactured after the date of approval of the standard 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 12096, *Mechanical vibration — Declaration and verification of vibration emission values*

prEN 13236:2017, *Safety requirements for superabrasive products*

EN 60204-1:2006, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2005)*

EN 60335-1:2012, *Household and similar electrical appliances — Safety — Part 1: General requirements (IEC 60033-1:2010, modified)*

EN 60335-2-41:2003, *Household and similar electrical appliances — Safety — Part 2-41: Particular requirements for pumps 2 (IEC 60335-2-41:2002)*

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

EN 62841-1:2015, *Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery — Safety — Part 1: General requirements (IEC 62841-1:2014)*

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 5349-2:2001, *Mechanical vibration — Measurement and evaluation of human exposure to hand-transmitted vibration — Part 2: Practical guidance for measurement at the workplace (ISO 5349-2:2001)*

EN ISO 7010:2012, *Graphical symbols — Safety colours and safety signs — Registered safety signs (ISO 7010:2011)*

EN ISO 8041-1, *Human response to vibration — Measuring instrumentation — Part 1: General purpose vibration meters (ISO 8041-1)*

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

EN ISO 13732-1:2008, *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces (ISO 13732-1:2006)*

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

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 16089:2015, *Machine tools — Safety — Stationary grinding machines (ISO 16089:2015)*

EN ISO 20643:2008, *Mechanical vibration — Hand-held and hand-guided machinery — Principles for evaluation of vibration emission (ISO 20643:2005)*

ISO 5348, *Mechanical vibration and shock — Mechanical mounting of accelerometers*

ISO 16063-1:1998, *Methods for the calibration of vibration and shock transducers — Part 1: Basic concepts*

3 Terms and definitions

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

ISO and IEC maintain terminological 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
cutting-off machine
transportable machine used in building and site construction, operating at a stationary position and intended for cutting primarily construction material of different weight, shape and dimensions, for example natural stone, concrete (reinforced or otherwise), bricks, concrete blocks (breeze blocks), paving slabs or cobblestones, roof tiles and ceramic tiles

Note 1 to entry: The feed of the material or of the table where it is placed is made by hand. The cutting head, if movable, is moved manually or by a pedal.

Note 2 to entry: The power source of a cutting-off machine is an electrical motor or an internal combustion engine with built-in tank

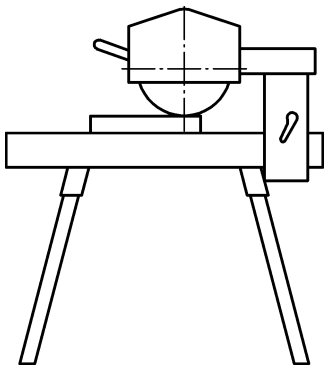
3.2
types of cutting-off machines
cutting-off machines can be basically classified in four different types defined below:

— Type 1: Machine with a movable table having a fixed (permanently or by means of clamps) or swinging moveable cutting head (tiltable or not) which is located over the table;

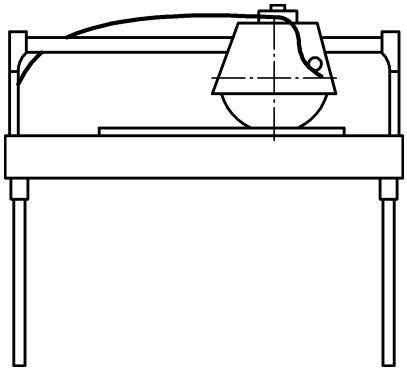
— Type 2: Machine with a fixed table having a horizontal moving cutting head and, if applicable, vertically adjustable and tiltable cutting head located over the table;

— Type 3: Machine with a fixed table having a vertically moving cutting head;

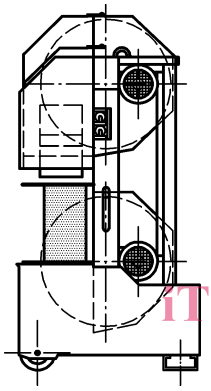
— Type 4: Machine with a fixed or movable and/or inclinable table having a fixed cutting head, and only intended for use with continuous rim tools having a maximum diameter of 250 mm. The motor is located under the table;



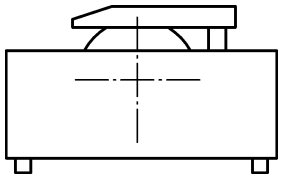
Type 1



Type 2



Type 3



Type 4

Figure 1 — Sketches of the different types of cutting-off machines

3.3
parts of a cutting-off machine
cutting-off machine comprising the following parts:

— frame;

— electric motor or an ICE (internal combustion engine) to drive the cutting-off wheel in rotation;

— cutting head;

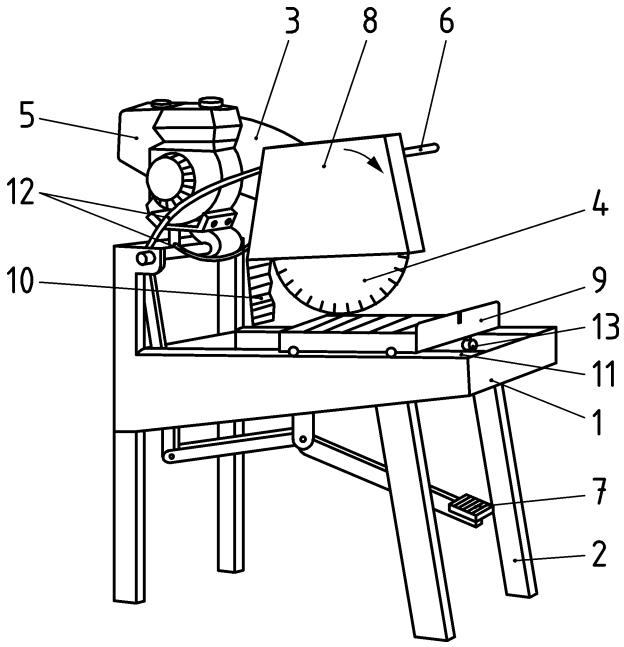
— rotating cutting-off wheel (see Clause 1);

— material-carrying table (movable and/or tiltable or not);

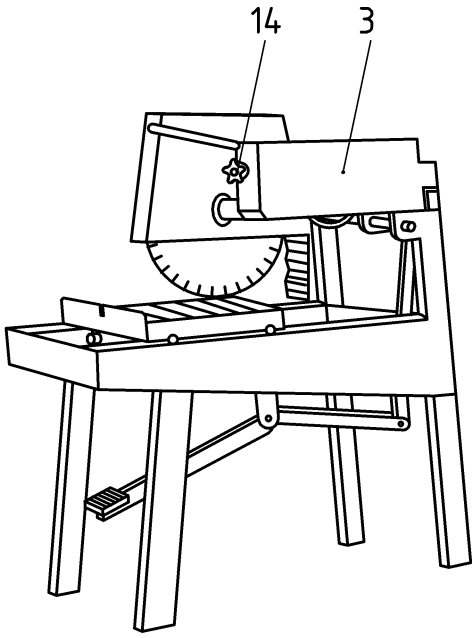
— cutting-off wheel guard;

— self-containing water tank with an electrical or mechanical water pump or an alternative water supply.

See also Figure 2.



Cutting-off machine with internal combustion engine



Cutting-off machine with electric motor

Key

1 frame (incorporating the water tank)

2 legs (demountable or otherwise)

3 cutting head

4 cutting-off wheel

5 electric motor (or engine)

6 handle for moving the cutting head

7 foot pedal for lowering the cutting head (if any)

8 cutting-off wheel guard

9 moveable table including material stop for supporting materials to be cut

10 water splash deflector

11 table guiding tracks

12 water supply system

13 front stop of the table

14 cutting depth stop (for types 1 and 2 machines)

Figure 2 — Examples of cutting-off machines

3.4
cutting head
cutting head, also called mobile unit, consisting of:

— the cutting-off wheel;

— its fixing means on the spindle;

— the power unit or if the prime mover is fixed, the power transmission to the cutting-off wheel;