

**Ehitusmasinad ja -seadmed. Kantavad käeshoitavad  
sisepõlemismootoriga lõikeseadmed. Ohutusnõuded  
(ISO 19432:2012)**

**Building construction machinery and equipment -  
Portable, hand-held, internal combustion engine driven  
cut-off machines - Safety requirements (ISO 19432:2012)**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 19432:2012 sisaldab Euroopa standardi EN ISO 19432:2012 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 19432:2012 consists of the English text of the European standard EN ISO 19432:2012.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 15.07.2012.	Date of Availability of the European standard is 15.07.2012.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

ICS 91.220

Võtmesõnad: accident prevention, acoustic measurement, design, dimensions, equipment specifications, hazards, heat engines, marking, portable equipment, safety measures, safety of machines, sawing machines (tools), technical notices, verification,

### Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:  
Aru 10, 10317 Tallinn, Eesti; [www.evs.ee](http://www.evs.ee); telefon 605 5050; e-post [info@evs.ee](mailto:info@evs.ee)

### The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:  
Aru 10, 10317 Tallinn, Estonia; [www.evs.ee](http://www.evs.ee); phone 605 5050; e-mail [info@evs.ee](mailto:info@evs.ee)

English Version

Building construction machinery and equipment - Portable,  
hand-held, internal combustion engine driven cut-off machines -  
Safety requirements (ISO 19432:2012)

Machines et matériels pour la construction des bâtiments -  
Tronçonneuses à disque, portatives, à moteur à  
combustion interne - Exigences de sécurité (ISO  
19432:2012)

Baumaschinen und -ausrüstungen - Tragbare,  
handgeführte Trennschleifmaschinen mit  
Verbrennungsmotor - Sicherheitsanforderungen (ISO  
19432:2012)

This European Standard was approved by CEN on 23 June 2012.

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



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

## Foreword

This document (EN ISO 19432:2012) has been prepared by Technical Committee ISO/TC 195 "Building construction machinery and equipment" in collaboration with 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 January 2013, and conflicting national standards shall be withdrawn at the latest by January 2013.

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

This document supersedes EN ISO 19432:2008.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive.

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### Endorsement notice

The text of ISO 19432:2012 has been approved by CEN as a EN ISO 19432:2012 without any modification.

## **Annex ZA** (informative)

### **Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC**

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 2006/42/EC on machinery.

Once this standard is cited in the Official Journal of the European Union under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this standard confers, within the limits of the scope of this standard, a presumption of conformity with the relevant Essential Requirements of that Directive and associated EFTA regulations.

**WARNING:** Other requirements and other EU Directives may be applicable to the products falling within the scope of this standard.

# Contents

Page

Foreword .....	iv
Introduction .....	v
<b>1 Scope .....</b>	<b>1</b>
<b>2 Normative references .....</b>	<b>1</b>
<b>3 Terms and definitions .....</b>	<b>2</b>
<b>4 Safety requirements and verification .....</b>	<b>4</b>
4.1 General .....	4
4.2 Handles .....	5
4.3 Spindle speed .....	5
4.4 Engine-starting device .....	5
4.5 Engine-stopping device .....	6
4.6 Throttle control system .....	6
4.7 Clutch .....	8
4.8 Exhaust gases .....	8
4.9 Cutting-debris discharge .....	8
4.10 Fuel and oil system .....	9
4.11 Protection against contact with parts under high voltage .....	9
4.12 Transmission cover(s) .....	10
4.13 Protection against contact with hot parts .....	10
4.14 Cut-off wheel guard .....	12
4.15 Flange locking device .....	13
4.16 Flange assembly .....	13
4.17 Spindle diameter .....	15
4.18 Special tools .....	15
4.19 Noise .....	15
4.20 Vibration .....	15
4.21 Electromagnetic immunity .....	16
<b>5 Information for use .....</b>	<b>16</b>
5.1 Instruction handbook .....	16
5.2 Markings .....	19
5.3 Warnings .....	20
<b>Annex A (normative) Strength test of cut-off wheel guard .....</b>	<b>21</b>
<b>Annex B (normative) Noise test code — Engineering method (grade 2 of accuracy) .....</b>	<b>23</b>
<b>Annex C (normative) Measurement of vibration values at the handles .....</b>	<b>31</b>
<b>Annex D (normative) Cut-off machine positions .....</b>	<b>38</b>
<b>Annex E (informative) Summary of results from round-robin tests (2007 and 2008) on one cut-off machine .....</b>	<b>40</b>
<b>Annex F (informative) List of significant hazards .....</b>	<b>41</b>
<b>Bibliography .....</b>	<b>43</b>

## Introduction

This International Standard is a type-C standard as stated in ISO 12100.

The machinery concerned and the extent to which hazards, hazardous situations or hazardous events are covered are indicated in the Scope of this International Standard.

When requirements of this type-C standard are different from those which are stated in type-A or -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.

# Building construction machinery and equipment — Portable, hand-held, internal combustion engine driven cut-off machines — Safety requirements

## 1 Scope

This International Standard specifies safety requirements, and measures for their verification, for the design and construction of portable, hand-held, internal combustion engine-driven, cut-off machines, intended to be used by a single operator in the cutting of construction materials, such as asphalt, concrete, stone and metal. It is applicable only to those machines designed purposely for use with a rotating, bonded-abrasive and/or super-abrasive (diamond) cut-off wheel having a maximum outer diameter of 430 mm, centre-mounted on, and driven by, a spindle shaft, where the top of the wheel rotates away from the operator (see Figure 1).

This International Standard deals with all significant hazards, hazardous situations or hazardous events significant to these machines when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer. (See Annex F for a list of significant hazards.)

This International Standard specifies methods for the elimination or reduction of hazards arising from their use, as well as the type of information on safe working practices to be provided with the machines.

Cut-off wheel specifications are not considered in this International Standard; for such specifications, see, for example, ISO 603-7<sup>[1]</sup>, ISO 13942<sup>[12]</sup> and ISO 22917<sup>[15]</sup>.

This International Standard is not applicable to machines manufactured before the date of its publication.

## 2 Normative references

The following referenced documents are indispensable for the application 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.

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 4871:1996, *Acoustics — Declaration and verification of noise emission values of machinery and equipment*

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 7293, *Forestry machinery — Portable chain-saws — Engine performance and fuel consumption*

ISO 7914:2002, *Forestry machinery — Portable chain-saws — Minimum handle clearance and sizes*

ISO 8041, *Human response to vibration — Measuring instrumentation*



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/TR 11688-1, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning*

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

ISO 13857:2008, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs*

ISO 14982:1998, *Agricultural and forestry machinery— Electromagnetic compatibility — Test methods and acceptance criteria*

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

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

IEC 60745-1:2006, *Hand-held motor-operated electric tools — Safety — Part 1: General requirements*

IEC 61672-1:2002, *Electroacoustics — Sound level meters — Part 1: Specifications*

### 3 Terms and definitions

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

#### 3.1

##### **cut-off wheel**

wheel composed of abrasive particles bonded together by an appropriate binder and incorporating, if necessary, some appropriate form of reinforcement, or made of metal or other materials of similar properties and having diamond, CBN particles or other suitable abrasive particles bonded to its rim

#### 3.2

##### **arbor hole**

centre hole of the cut-off wheel used for mounting the cut-off wheel on the machine spindle

#### 3.3

##### **blotter**

washers made from some compressible material (e.g. paper, card or similar), attached to each side of the cut-off wheel, the function of which is to smooth imperfections in the cut-off wheel and allow a limited degree of slip when the wheel stalls in use

#### 3.4

##### **choke**

device for enriching the fuel air mixture in the carburettor, to aid starting

#### 3.5

##### **clutch**

device for connecting and disconnecting the driven member to and from a rotating source of power

#### 3.6

##### **cut-off wheel guard**

partial enclosure intended to deflect cutting debris, as well as pieces of the cut-off wheel in the event that the wheel is broken in operation