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Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Safety - Part 2-22: Particular requirements for hand-held cut-off machines

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IEC TC 116 : SAFETY OF MOTOR-OPERATED ELECTRIC TOOLS	
SECRETARIAT: United States of America	SECRETARY: Mr Joseph Harding
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input checked="" type="checkbox"/> SAFETY	
<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING <input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING Attention IEC-CENELEC parallel voting The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system.	
<p>This document is still under study and subject to change. It should not be used for reference purposes.</p> <p>Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.</p> <p>Recipients of this document are invited to submit, with their comments, notification of any relevant "In Some Countries" clauses to be included should this proposal proceed. Recipients are reminded that the CDV stage is the final stage for submitting ISC clauses. (SEE AC/22/2007 OR NEW GUIDANCE DOC).</p>	
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NOTE FROM TC/SC OFFICERS:	

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY –**Part 2-22: Particular requirements for hand-held cut-off machines**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 62841-2-22 has been prepared by IEC technical committee 116: Safety of motor-operated electric tools. It is an International Standard.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
116/XX/FDIS	116/XX/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document is to be used in conjunction with IEC 62841-1:2014.

This document supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC Standard: Particular requirements for hand-held cut-off machines.

Where a particular subclause of IEC 62841-1 is not mentioned in this document, that subclause applies as far as reasonable. Where this document states "addition", "modification" or "replacement", the relevant text in IEC 62841-1 is to be adapted accordingly.

The following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- **terms defined in Clause 3: in bold type**
- notes: in small roman type.

Subclauses, notes, tables and figures which are additional to those in IEC 62841-1 are numbered starting from 101.

Subclauses, notes, tables and figures in Annex K and Annex L which are additional to those in the main body of this document are numbered starting from 301.

A list of all parts in the IEC 62841 series, published under the general title *Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety*, can be found on the IEC website.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

NOTE The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 36 months from the date of publication.

ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY –

Part 2-22: Particular requirements for hand-held cut-off machines

1 Scope

IEC 62841-1:2014, Clause 1 is applicable, except as follows:

Replacement of the third paragraph:

The **rated voltage** is not more than 250 V for single-phase a.c. or d.c. tools, and 480 V for three-phase a.c. tools.

Addition:

This document applies to hand-held **cut-off machines** fitted with

- one **bonded reinforced wheel** of Type 41 or Type 42; or
- one or more **diamond cutting wheels** with peripheral gaps, if any,
 - having no positive rake angle for **flush cutters**, **power cutters** and **wall chasers**; and
 - not exceeding 10 mm and having no positive rake angle for **cut-off machines** other than **flush cutters**, **power cutters** and **wall chasers**;

and with

- a **rated speed** not exceeding a peripheral speed of the wheel of 100 m/s at **rated capacity**; and
- a **rated capacity** not exceeding 430 mm.

NOTE 101 An example of a permitted **diamond cutting wheel** construction is shown in Figure 101.

These tools are intended to cut materials such as metals, concrete, masonry, glass and tile.

This document does not apply to:

- **cut-off machines** that can be converted to a grinder, sander or polisher, which are covered by IEC 62841-2-3;
- circular saws which are covered by IEC 62841-2-5; and
- die grinders and small rotary tools which are covered by IEC 62841-2-23;
- tools intended to cut wood, except for **utility cutters**;
- **cut-off machines** fitted with a **bonded reinforced wheel** of Type 42 with a diameter exceeding 230 mm.

2 Normative references

IEC 62841-1:2014, Clause 2 is applicable, except as follows:

Addition:

EN 1339:2003, *Concrete paving flags – Requirements and test methods*

206 IEC 61008-1:2010, *Residual current operated circuit-breakers without integral overcurrent*
 207 *protection for household and similar uses (RCCBs) – Part 1: General rules*¹
 208 Amendment 1:2012
 209 Amendment 2:2013

210 IEC 62841-1:2014, *Electric motor-operated hand-held tools, transportable tools and lawn and*
 211 *garden machinery – Safety – Part 1: General requirements*

212 ISO 603-15:1999, *Bonded abrasive products – Dimensions – Part 15: Grinding wheels for*
 213 *cutting-off on stationary or mobile cutting-off machines*

214 ISO 603-16:1999, *Bonded abrasive products – Dimensions – Part 16: Grinding wheels for*
 215 *cutting-off on hand-held power tools*

216 ISO 630-2:2021, *Structural steels – Part 2: Technical delivery conditions for structural steels*
 217 *for general purposes*

218 ISO 19432-1:2020, *Building construction machinery and equipment – Portable, hand-held,*
 219 *internal combustion engine-driven abrasive cutting machines – Part 1: Safety requirements for*
 220 *cut-off machines for centre-mounted rotating abrasive wheels*

221 **3 Terms and definitions**

222 IEC 62841-1:2014, Clause 3 is applicable, except as follows:

223 *Addition:*

224 **3.101** 225 **blotter**

226 thin piece of an easily compressible material, between the abrasive wheel and **flange**

227 **3.102** 228 **bonded reinforced wheel**

229 wheel for cutting-off applications in accordance with ISO 603-15 and ISO 603-16

230 **3.103** 231 **cut-off machine**

232 **hand-held tool** designed to cut by means of the periphery of a rotating abrasive cut-off wheel
 233 (**bonded reinforced wheel** or **diamond cutting wheel**) where the wheel is fixed on a spindle

234 Note 101 to entry: See Figure 101.

235 **3.104** 236 **diamond cutting wheel**

237 metal wheel with the abrasives located on the periphery of the wheel

238 **3.105** 239 **flange**

240 collar, disc, or plate between or against which wheels are mounted

241 **3.105.1** 242 **flange outside diameter**

243 outside diameter of the contact surface of a **flange**

¹ There exists a consolidated version (Edition 3.2:2013) which includes IEC 61008-1:2010 and its Amendment 1 (2012) and Amendment 2 (2013).

3.105.2**inner flange**

part that contacts and provides support to the back side of the wheel and is located on the spindle between wheel and tool

3.105.3**outer flange**

part that supports the front side of the wheel and secures and clamps the wheel to the spindle and the **backing flange**

3.106**flush cutter**

cut-off machine that is designed to perform flush cutting operations

Note 101 to entry: See Figure 102.

Note 102 to entry: An example of a flush cutting operation is cutting a groove in a floor that is very close to a wall.

3.107**guide plate**

flat plate mounted on the machine which rests on the material to be cut

3.108**guide roller**

roller mounted on the machine which rests on the material to be cut

3.109**power cutter**

cut-off machine for cutting surfaces or materials with a standing operator and is provided with a front and rear handle that are located behind the rotating abrasive cut-off wheel

Note 101 to entry: See Figure 103.

3.110**rated capacity**

maximum intended diameter of the rotating **accessory** to be fitted on the tool as recommended by the manufacturer's instructions

3.111**utility cutter**

cut-off machine with a **rated capacity** not exceeding 100 mm

Note 101 to entry: See Figure 104.

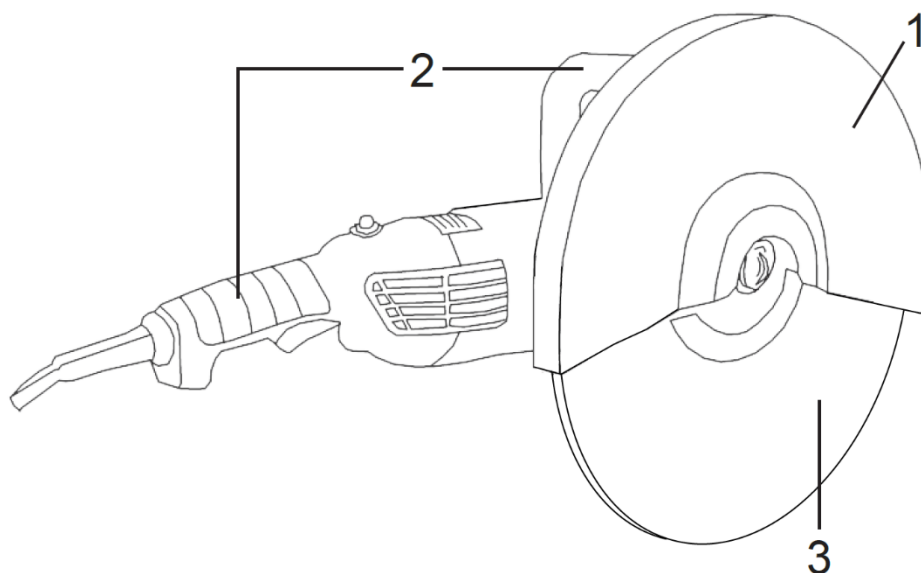
3.112**wall chaser**

cut-off machine on which one or more **diamond cutting wheels** are mounted and used for non-through cutting operations

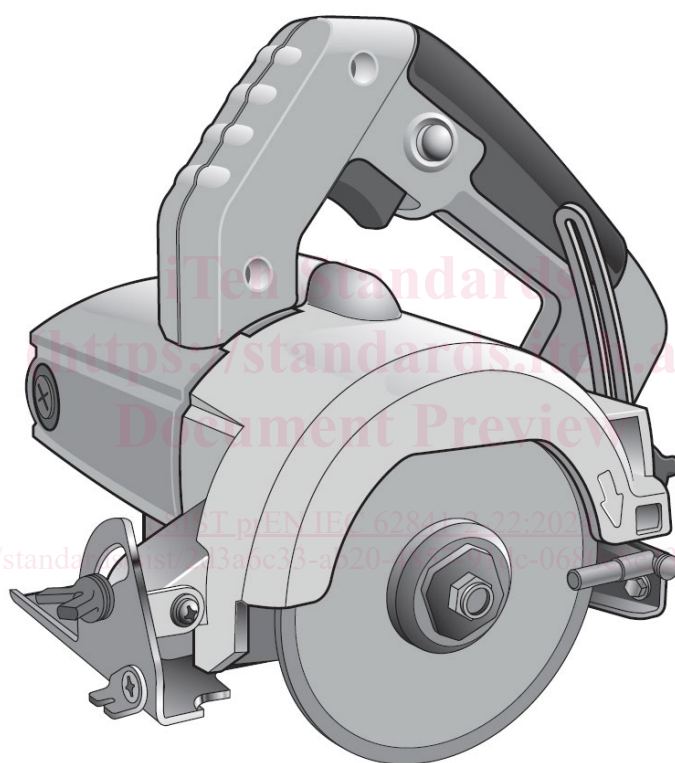
Note 101 to entry: See Figure 105.

3.113**wheel guard**

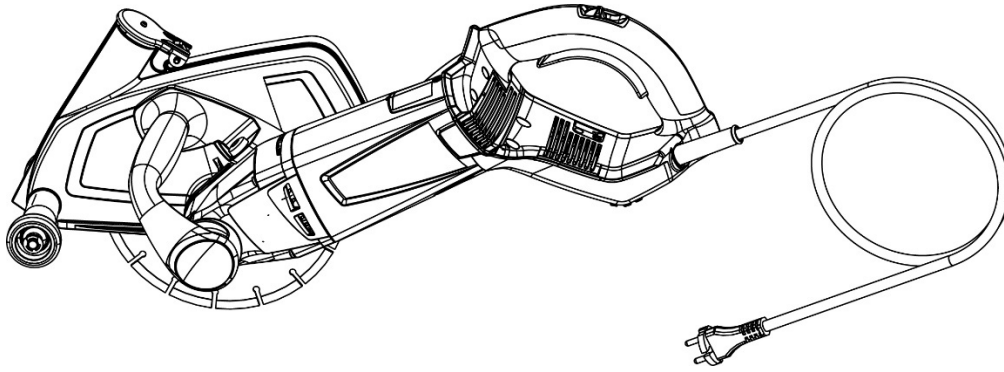
device which partly encloses the abrasive wheel and gives protection to the operator



a) Example of a cut-off machine



b) Example of a cut-off machine with base plate



c) Example of a cut-off machine with dust extraction

Key

- 1 wheel guard
- 2 handle
- 3 wheel

Figure 101 – Examples of cut-off machines

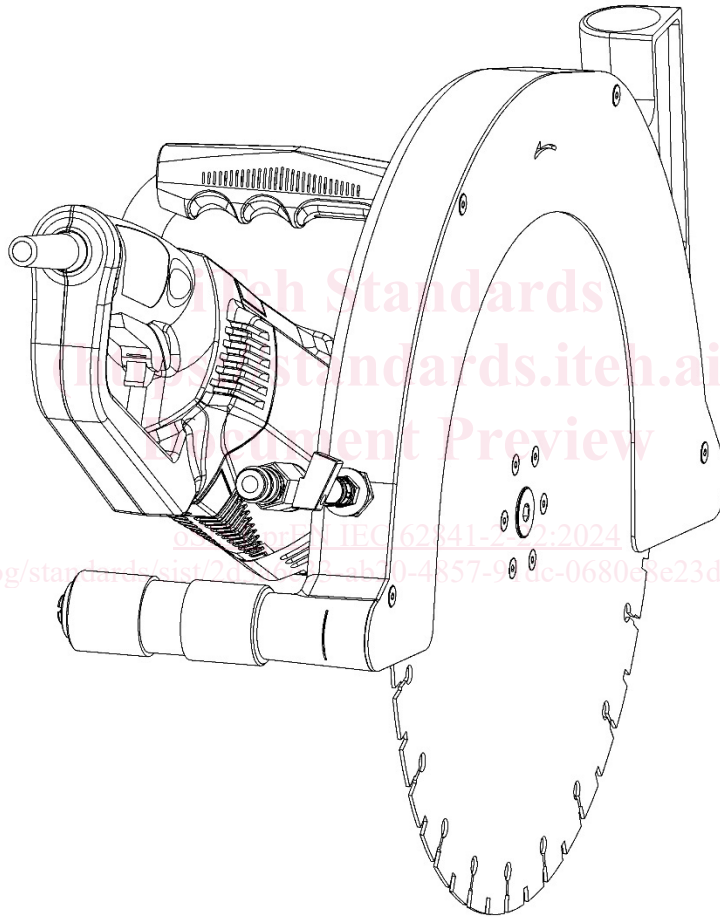
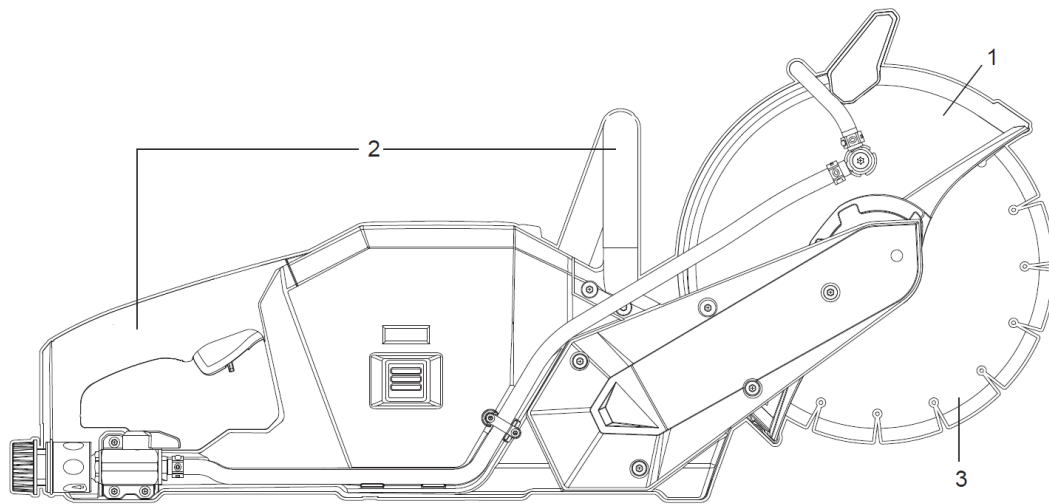


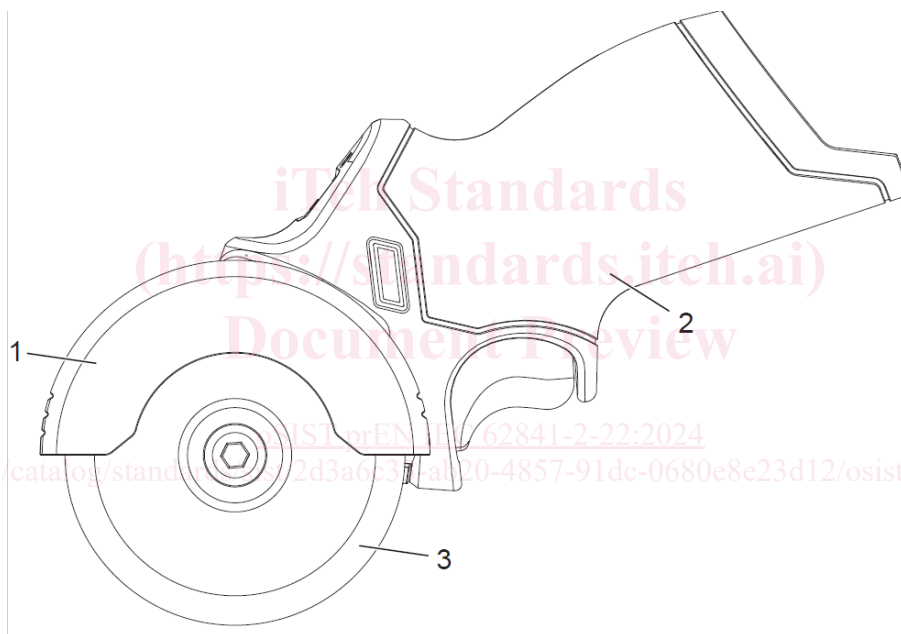
Figure 102 – Example of a flush cutter



298

299 **Key**300 1 **wheel guard**301 2 **handle**302 3 **wheel**

303

Figure 103 – Example of a power cutter

304

305 **Key**306 1 **wheel guard**307 2 **handle**308 3 **wheel**

309

Figure 104 – Example of a utility cutter

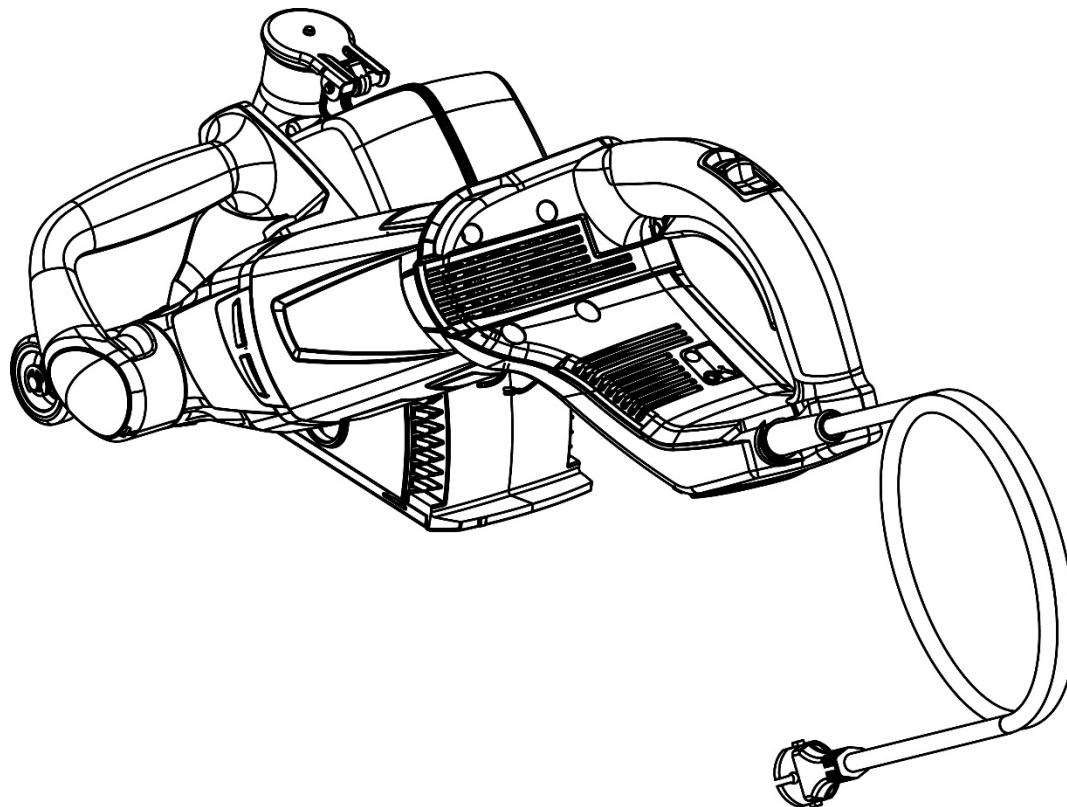


Figure 105 – Example of a wall chaser

4 General requirements

IEC 62841-1:2014, Clause 4 is applicable.

5 General conditions for the tests

IEC 62841-1:2014, Clause 5 is applicable, except as follows:

5.17 Addition:

*The mass of a **cut-off machine** includes the **wheel guard**, the **flanges**, the **handles** and the **guide plate** or **guide roller**, if any.*

6 Radiation, toxicity and similar hazards

IEC 62841-1:2014, Clause 6 is applicable.

7 Classification

IEC 62841-1:2014, Clause 7 is applicable.

8 Marking and instructions

IEC 62841-1:2014, Clause 8 is applicable, except as follows:

8.1 Addition:

Tools shall also be marked with: