IEC 62841-2-3

Edition 1.0 2020-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety –
Part 2-3: Particular requirements for hand-held grinders, disc-type polishers and disc-type sanders

Outils électroportatifs à moteur, outils portables et machines pour jardins et pelouses – Sécurité –
Partie 2-3: Exigences particulières pour les meuleuses portatives et pour les lustreuses et ponceuses portatives du type à disque

IEC 62841-2-3:2020-04(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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International Standard IEC 62841-2-3 has been prepared by IEC technical committee 116: Safety of motor-operated electric tools.

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

FDIS	Report on voting
116/444/FDIS	116/454/RVD

Full information on the voting for the approval of this International standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

This Part 2-3 is to be used in conjunction with the first edition of IEC 62841-1:2014.

This Part 2-3 supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC Standard: Particular requirements for hand-held grinders, disc-type polishers and disc-type sanders.

Where a particular subclause of Part 1 is not mentioned in this Part 2-3, that subclause applies as far as relevant. Where this standard states “addition”, “modification” or “replacement”, the relevant text in Part 1 is to be adapted accordingly.

The following print types are used:

– requirements: in roman type;
– *test specifications: in italic type;*
– notes: in small roman type.

The terms in **bold typeface** in the text are defined in Clause 3

Subclauses, notes and figures which are additional to those in Part 1 are numbered starting from 101.

A list of all parts of the IEC 62841 series, 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.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication 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 2-3: Particular requirements for hand-held grinders, disc-type polishers and disc-type sanders

1 Scope

This clause of Part 1 is applicable, except as follows:

Addition:

This part of IEC 62841 applies to hand-held **grinders**, **disc-type polishers** and **disc-type sanders**, including angle, straight and vertical tools, intended for use on various materials except magnesium, with a **rated capacity** not exceeding 230 mm. For **grinders**, the **rated no-load speed** does not exceed a peripheral speed of the **accessory** of 80 m/s at **rated capacity**.

This standard does not apply to dedicated cut-off machines.

NOTE 101 It is planned that a document on cut-off machines will be published.

This standard does not apply to orbital polishers and orbital sanders.

NOTE 102 It is planned that a document on orbital polishers and orbital sanders will be published.

This standard does not apply to die grinders.

NOTE 103 Die grinders are covered by IEC 62841-2-23.

2 Normative references

This clause of Part 1 is applicable except as follows:

Addition:

ISO 525:2013, *Bonded abrasive products – General requirements*

3 Terms and definitions

This clause of Part 1 is applicable, except as follows:

3.101
blotter
thin piece of an easily compressible material, between the abrasive product and **flange**

3.102
diamond wheel
metal wheel with continuous or segmented diamond abrasives

3.102.1
diamond cutting wheel
metal wheel with the abrasives located on the periphery of the wheel

3.102.2
diamond grinding wheel
metal wheel with abrasives located on the face of the wheel

3.103
disc-type polisher
tool equipped with a rotating flexible disc or pad intended for polishing

Note 101 to entry: Polishing is an operation to produce a smooth or shiny surface.

3.104
disc-type sander
tool, constructed like a **grinder**, intended for sanding

Note 101 to entry: Sanding is an operation to remove material using flexible abrasive material, such as sandpaper.

3.105
flange
collar, disc or plate between or against which wheels are mounted

3.105.1
unrecessed (flange)
flange fixed to the machine spindle having an **unrecessed** flat surface against which a threaded hole abrasive product is screwed, e.g. a cup wheel, a cone or a plug

3.105.2
inner flange
flange which 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
flange which supports the front side of the wheel and secures and clamps the wheel to the spindle and the **inner flange**

Note 101 to entry: In Canada and the United States of America, the following additional definition applies:

3.105.UC1
adaptor backing flange
inner flange which contacts and supports in the hub area and extends past the raised portion to reduce the flexing of the wheel periphery

3.106
grinder
tool driving a rotating spindle on which a bonded abrasive product or a **diamond wheel** is mounted

3.106.1
angle grinder
grinder with the rotating spindle at an angle to the axis of the tool body which acts as a grasping surface, intended for peripheral and lateral grinding

Note 101 to entry: See Figure 101.

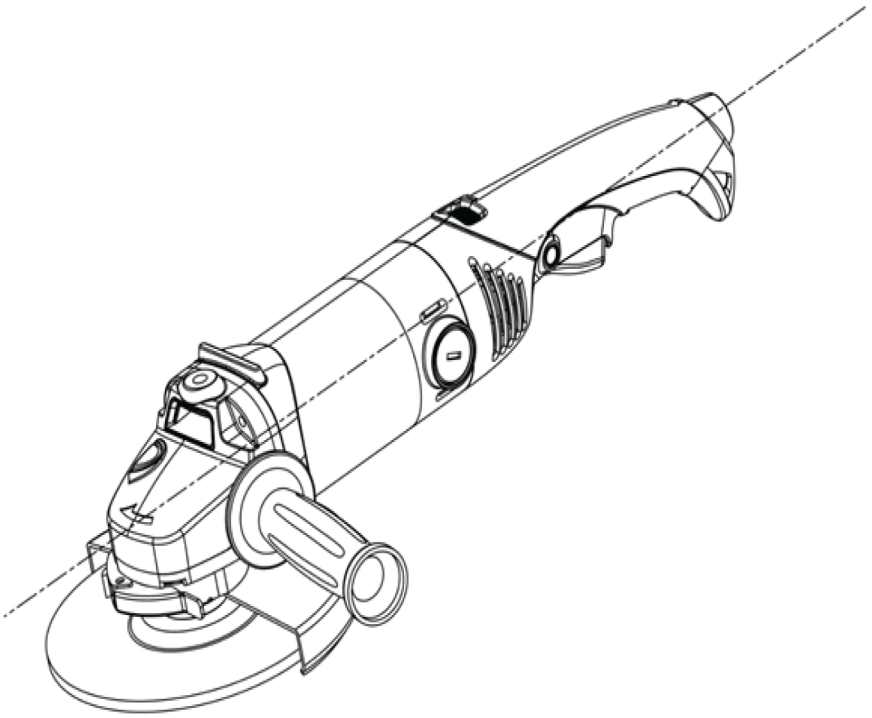

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Figure 101 – Example of an angle grinder

3.106.2
straight grinder
grinder with the rotating spindle in-line with the axis of the tool body which acts as a grasping surface, intended for peripheral grinding only and not equipped with a collet or chuck

Note 101 to entry: See Figure 102.

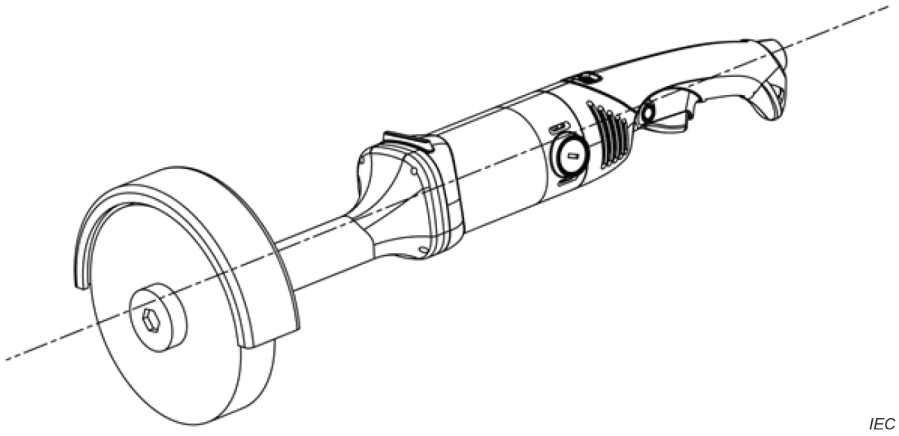

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Figure 102 – Example of a straight grinder

3.106.3
vertical grinder
grinder with the rotating spindle in-line with the axis of the tool body and with handles that are substantially perpendicular to the axis of the rotating spindle, intended for peripheral and lateral grinding

Note 101 to entry: See Figure 103.

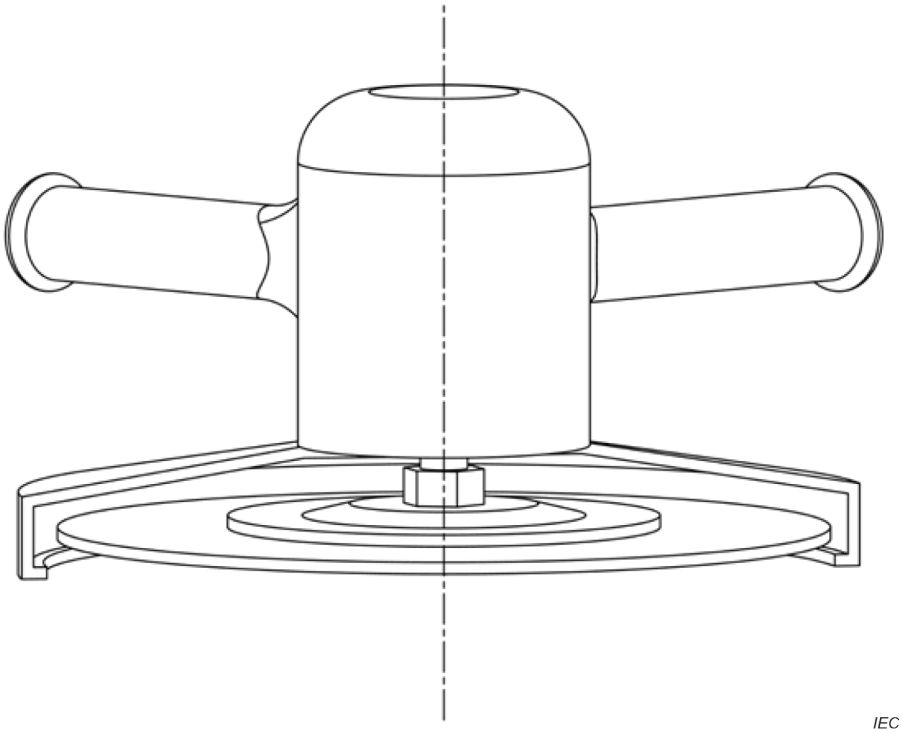

Figure 103 – Example of a vertical grinder

3.107
guide plate
flat plate on the machine which rests on the material to be cut

3.108
guide roller
roller on the machine which rests on the material to be cut

3.109
minor fragment
particles less than 1/16 of the mass of the abrasive wheel

3.110
rated capacity
maximum diameter of the rotating **accessory** to be fitted on the tool as specified by the manufacturer's instruction

3.111
wheel guard
device which partly encloses the abrasive wheel and gives protection to the operator

3.112
wheel types
alphanumeric designation of wheels based upon application and shape

Note 101 to entry: Shapes for **wheel types** are given in Annex CC.

4 General requirements

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable, except as follows:

5.17 *Addition:*

*The mass of a **grinder** includes the **wheel guard**, the **flanges** and the handles.*

*The mass of a **disc-type polisher** or **disc-type sander** includes the **flanges** and the handles.*

6 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable.

7 Classification

This clause of Part 1 is applicable.

8 Marking and instructions

This clause of Part 1 is applicable, except as follows:

8.1 *Addition:*

Tools shall also be marked with:

– **rated no-load speed**;
– **rated capacity**.

NOTE 101 The requirement for marking **rated capacity** does not prohibit the additional marking of smaller permitted diameters of the rotating **accessory** other than **rated capacity** (e.g. 115 mm / 125 mm, where 125 mm is the **rated capacity**).

8.2 *Addition:*

Tools shall also be marked with:

"⚠ **WARNING** Always wear eye protection" or sign M004 of ISO 7010 or the following safety sign:

The eye protection symbol may be modified by adding other personal protective equipment such as ear protection, dust mask, etc.

Tools that require at least two handles in accordance with 19.4 shall be marked with

– "⚠ **WARNING** Always operate with two hands"; or
– the following safety sign:

NOTE In Canada and the United States of America, the following additional requirements apply:

Tools shall be marked with the following additional safety warnings:

– "WARNING – To reduce the risk of injury, use only accessories rated at least equal to the maximum speed marked on the tool."

In Canada, the equivalent French wording of the above warning is as follows: “AVERTISSEMENT – Pour réduire le risque de blessure, utiliser uniquement les accessoires convenant au moins à la vitesse maximale inscrite sur l’outil.”

All **grinders** required to have a **wheel guard** by 19.101.2 shall be marked with the following warning:

– “WARNING – To reduce the risk of injury, always use proper guards when grinding.”

In Canada, the equivalent French wording of the above warning is as follows: “AVERTISSEMENT – Pour réduire le risque de blessure, utiliser toujours les protecteurs appropriés pendant le meulage.”

If the above cautionary markings are included as part of a list of cautionary markings, the words “WARNING – To reduce the risk of injury” need not be repeated.

8.2.101 A Type B **wheel guard** in accordance with Annex AA shall be marked with

– “**WARNING** Not for cut-off operations”; or

– the following safety sign:

8.3 *Addition:*

Tools provided with a threaded spindle intended to accept threaded **accessories** in accordance with 8.14.2 shall be marked with the spindle thread size.

The direction of rotation of the spindle shall be indicated on the tool by an arrow, raised or recessed or by any other means no less visible and indelible.

8.6 *Addition:*

always operate with two hands

do not use the guard for cut-off operations

8.12 *Addition:*

The safety sign required by 8.2.101 need not be in accordance with the red colour requirements of ISO 3864-2.

8.14.1.101 Additional safety instructions for grinders, disc-type polishers and disc-type sanders

8.14.1.101.1 General

The additional safety instructions as specified in 8.14.1.101.2 to 8.14.1.101.8 shall be given. This part may be printed separately from the "General Power Tool Safety Warnings".

In these safety instructions, terms such as grinding/**grinder**, sanding/sander, wire brushing/wire brush, polishing/polisher or cutting-off/cut-off tool are selected as specified by the manufacturer. These terms in the warnings and headings shall be consistently used or deleted based on the selected operations. The “and”/“or” conjunctions may be used as appropriate.

If the power tool is intended only for one of the listed operations, the heading of that section is to be used for all warnings.

8.14.1.101.2 Safety instructions for all operations

Safety warnings common for grinding, sanding, wire brushing, polishing or cutting-off operations:

NOTE 101 In the above heading, those operations not applicable are omitted.

a) **This power tool is intended to function as a grinder, sander, wire brush, polisher, hole cutter or cut-off tool. Read all safety warnings, instructions, illustrations and specifications provided with this power tool**. *Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury*.

NOTE 102 Only the applicable operations are listed.

b) **Operations such as grinding, sanding, wire brushing, polishing, hole cutting or cutting-off are not to be performed with this power tool**. *Operations for which the power tool was not designed may create a hazard and cause personal injury*.

NOTE 103 Only those operations are listed that were not included in the first warning. If all listed operations are intended, then this warning is omitted, but all subsequent warnings are given without exclusion.

c) **Do not convert this power tool to operate in a way which is not specifically designed and specified by the tool manufacturer**. *Such a conversion may result in a loss of control and cause serious personal injury*.

d) **Do not use accessories which are not specifically designed and specified by the tool manufacturer**. *Just because the accessory can be attached to your power tool, it does not assure safe operation*.

e) **The rated speed of the accessory must be at least equal to the maximum speed marked on the power tool**. *Accessories running faster than their rated speed can break and fly apart.*

f) **The outside diameter and the thickness of your accessory must be within the capacity rating of your power tool**. *Incorrectly sized accessories cannot be adequately guarded or controlled.*

g) **The dimensions of the accessory mounting must fit the dimensions of the mounting hardware of the power tool**. *Accessories that do not match the mounting hardware of the power tool will run out of balance, vibrate excessively and may cause loss of control*.

h) **Do not use a damaged accessory. Before each use inspect the accessory such as abrasive wheels for chips and cracks, backing pad for cracks, tear or excess wear, wire brush for loose or cracked wires. If power tool or accessory is dropped, inspect for damage or install an undamaged accessory. After inspecting and installing an accessory, position yourself and bystanders away from the plane of the rotating accessory and run the power tool at maximum no-load speed for one minute.** *Damaged accessories will normally break apart during this test time*.