



IEC 62841-3-8

Edition 1.0 2024-10  
EXTENDED VERSION

# INTERNATIONAL STANDARD



This full version of IEC 62841-3-8:2024 includes the content of the references made to IEC 62841-1:2014

---

**Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety –  
Part 3-8: Particular requirements for transportable single spindle vertical moulders**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

---

ICS 25.140.20

ISBN 978-2-8322-9874-9

**Warning! Make sure that you obtained this publication from an authorized distributor.**

## CONTENTS

FOREWORD .....	5
INTRODUCTION to IEC 62841-1:2014 .....	8
1 Scope .....	9
2 Normative references .....	10
3 Terms and definitions .....	15
4 General requirements .....	25
5 General conditions for the tests .....	25
6 Radiation, toxicity and similar hazards .....	27
7 Classification .....	29
8 Marking and instructions .....	29
9 Protection against access to live parts .....	41
10 Starting .....	43
11 Input and current .....	43
12 Heating .....	43
13 Resistance to heat and fire .....	48
14 Moisture resistance .....	49
15 Resistance to rusting .....	52
16 Overload protection of transformers and associated circuits .....	53
17 Endurance .....	53
18 Abnormal operation .....	54
19 Mechanical hazards .....	62
20 Mechanical strength .....	75
21 Construction .....	82
22 Internal wiring .....	92
23 Components .....	94
24 Supply connection and external flexible cords .....	99
25 Terminals for external conductors .....	105
26 Provision for earthing .....	107
27 Screws and connections .....	109
28 Creepage distances, clearances and distances through insulation .....	112
Annex A (normative) Measurement of creepage distances and clearances .....	119
Annex B (normative) Motors not isolated from the supply mains and having basic insulation not designed for the rated voltage of the tool .....	124
Annex C (normative) Leakage current .....	126
Annex D (normative) Electric strength .....	130
Annex E (informative) Methods of applying ISO 13849-1 to power tools .....	132
Annex F (informative) Rules for routine tests .....	134
Annex G Void .....	136
Annex H (normative) Determination of a low-power circuit .....	137
Annex I (informative) Measurement of noise and vibration emissions .....	138
Annex J Void .....	147
Annex K (normative) Battery tools and battery packs .....	148

Annex L (normative) Battery tools and battery packs provided with mains connection or non-isolated sources.....	168
Bibliography.....	187
Figure 101 – Example of curved work .....	22
Figure 102 – Example of single spindle vertical moulder .....	23
Figure 103 – Example of stopped straight work .....	23
Figure 104 – Example of straight work .....	24
Figure 105 – Examples of tenoning .....	25
Figure 106 – Run out test of spindle rings .....	66
Figure 107 – Table dimensions .....	67
Figure 108 – Table rings .....	68
Figure 109 – Example of curved work workpiece guiding and cutter block guarding systems .....	70
Figure 110 – Test probe.....	71
Figure 111 – Straight work – example of using pressure devices .....	73
Figure 112 – Definition of fence pressure pad deflection measuring point and directions of application of the test forces (horizontal view).....	78
Figure 113 – Definition of fence pressure pad deflection measuring point and directions of application of the test forces (top view) .....	79
Figure 114 – Application of fence pressure pad test force "F" and measurement of displacement "f" (top view).....	79
Figure 115 – Definition of table pressure pad deflection measuring point and directions of application of test forces (horizontal view) .....	79
Figure 116 – Definition of table pressure pad deflection measuring point and directions of application of test forces (vertical view) .....	80
Figure 117 – Definition of the adjustable guard deflection measuring points and directions of application of test forces .....	81
Figure 118 – Definition of guiding steady deflection measuring points and directions of application of test forces .....	82
Figure 1 – Test fingernail .....	116
Figure 2 – Flexing test apparatus.....	117
Figure 3 – Overload test of a class II armature.....	118
Figure A.1 – Clearance gap for parallel sided and V-shaped groove .....	120
Figure A.2 – Clearance gap for rib and uncemented joint with groove .....	121
Figure A.3 – Clearance gap for uncemented joint and diverging-sided groove.....	122
Figure A.4 – Clearance gap between wall and screw .....	123
Figure B.1 – Simulation of fault conditions .....	125
Figure C.1 – Diagram for leakage current measurement for single-phase connection and three-phase tools suitable for single-phase supply .....	128
Figure C.2 – Diagram for leakage current measurement for three-phase connection .....	129
Figure C.3 – Circuit of the leakage current meter .....	129
Figure H.1 – Example of an electronic circuit with low-power points.....	137
Figure I.1 – Test bench.....	145
Figure I.2 – Positions of a hand-held power tool and microphones for the hemispherical / cylindrical measurement surface .....	145
Figure I.3 – Microphone positions on a cubic measurement surface .....	146

Figure I.4 – Directions of vibration measurement .....	146
Figure K.1 – Measurement of clearances .....	167
Figure L.1 – Measurement of clearances .....	186
Table 1 – Maximum normal temperature rises ( <i>1 of 2</i> ).....	46
Table 2 – Maximum outside surface temperature rises.....	48
Table 3 – Maximum winding temperature .....	55
Table 4 – Required performance levels .....	61
Table 101 – Tool holder spindle and cutting tool dimensions.....	64
Table 102 – Table dimensions .....	67
Table 103 – Table rings .....	68
Table 5 – Impact energies.....	76
Table 6 – Test torques .....	77
Table 104 – Metal saw blade guard characteristics .....	77
Table 105 – Light alloy saw blade guard characteristics.....	77
Table 106 – Fences and table pressure pad displacement .....	80
Table 107 – Adjustable guard deflection .....	81
Table 108 – Guiding steady deflection .....	82
Table 7 – Switch trigger force .....	87
Table 8 – Minimum cross-sectional area and AWG sizes of supply cords.....	100
Table 9 – Pull and torque value .....	102
Table 10 – Quick-connect terminals for earthing conductors .....	107
Table 11 – Torque for testing screws and nuts.....	110
Table 12 – Minimum creepage distances and clearances .....	113
Table D.1 – Test voltages .....	130
Table F.1 – Test voltages for the electric strength test.....	135
Table I.101 – Noise test conditions for single vertical spindle moulders .....	143
Table K.1 – Minimum creepage distances and clearances between parts of opposite polarity .....	166
Table L.1 – Minimum creepage distances and clearances between parts of opposite polarity .....	185

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

---

**ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE  
TOOLS AND LAWN AND GARDEN MACHINERY –  
SAFETY –****Part 3-8: Particular requirements for  
transportable single spindle vertical moulder****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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

**This extended version (EXV) of the official IEC Standard provides the user with the full content of the Standard.**

**IEC 62841-3-8:2024 EXV includes the content of IEC 62841-3-8:2024, and the references made to IEC 62841-1:2014.**

**The specific content of IEC 62841-3-8:2024 is displayed on a blue background.**

IEC 62841-3-8 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:

Draft	Report on voting
116/814/FDIS	116/834/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 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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

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 transportable single spindle vertical moulder.

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.

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](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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.

**IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.**

## INTRODUCTION to IEC 62841-1:2014

Individual countries may wish to consider the application of this Part 1 of IEC 62841, so far as is reasonable, to tools not mentioned in an individual part of IEC 62841-2, IEC 62841-3 or IEC 62841-4 and to tools designed on new principles.

Examples of standards dealing with non-safety aspects of **hand-held tools, transportable tools and lawn and garden machinery** are

- standards dealing with EMC aspects;
- standards dealing with environmental aspects.

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

## Part 3-8: Particular requirements for transportable single spindle vertical moulders

### 1 Scope

This International Standard deals with the safety of electric motor-operated or magnetically driven:

- **hand-held tools** (IEC 62841-2);
- **transportable tools** (IEC 62841-3);
- **lawn and garden machinery** (IEC 62841-4).

The above listed categories are hereinafter referred to as “tools” or “machines”.

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. The **rated input** is not more than 3 700 W.

The limits for the applicability of this standard for battery tools are given in K.1 and L.1.

This standard deals with the hazards presented by tools which are encountered by all persons in the **normal use** and reasonably foreseeable misuse of the tools.

Tools with electric heating elements are within the scope of this standard.

Requirements for motors not isolated from the supply, and having **basic insulation** not designed for the **rated voltage** of the tools, are given in Annex B. Requirements for rechargeable battery-powered motor-operated or magnetically driven tools and the battery packs for such tools are given in Annex K. Requirements for such tools that are also operated and/or charged directly from the mains or a non-isolated source are given in Annex L.

Hand-held electric tools, which can be mounted on a support or working stand for use as fixed tools without any alteration of the tool itself, are within the scope of this standard and such combination of a **hand-held tool** and a support is considered to be a **transportable tool** and thus covered by the relevant Part 3.

This standard does not apply to:

- tools intended to be used in the presence of explosive atmosphere (dust, vapour or gas);
- tools used for preparing and processing food;
- tools for medical purposes;

NOTE 1 IEC 60601 series covers a variety of tools for medical purposes.

- tools intended to be used with cosmetics or pharmaceutical products;
- heating tools;

NOTE 2 IEC 60335-2-45 covers a variety of heating tools.

- electric motor-operated household and similar electrical appliances;

NOTE 3 IEC 60335 series covers a variety of electric motor-operated household and similar electrical appliances.

- electrical equipment for industrial machine-tools;

NOTE 4 IEC 60204 series deals with electrical safety of machinery.

- small low voltage transformer operated bench tools intended for model making, e.g. the making of radio controlled model aircraft or cars, etc.

NOTE 5 In the United States of America, the following conditions apply:

This standard deals with tools used in non-hazardous locations in accordance with the National Electrical Code, NFPA 70.

NOTE 6 In Canada, the following conditions apply:

This standard deals with tools used in non-hazardous locations in accordance with the Canadian Electric Code, Part 1, CSA C22.1, and General Requirements – Canadian Electrical Code, Part II, CAN/CSA-C22.2 No. 0.

This document applies to transportable **single spindle vertical moulders**, with a maximum **tool holder** diameter of 200 mm, designed to cut wood and analogue materials also covered with plastic laminate or edgings by hand-feed operation.

NOTE 101 **Single spindle vertical moulders** other than transportable are covered by ISO 19085-6:2024.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60061, *Lamp caps and holders together with gauges for the control of interchangeability and safety*, available at <http://std.iec.ch/iec60061>

IEC 60065:2001, *Audio, video and similar electronic apparatus – Safety requirements<sup>1</sup>*  
Amendment 2:2010  
Amendment 1:2005

IEC 60068-2-75:1997, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC/TR 60083, *Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC*

IEC 60085:2007, *Electrical insulation – Thermal evaluation and designation*

IEC 60127 (all parts), *Miniature fuses*

IEC 60227 (all parts), *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

IEC 60238, *Edison screw lampholders*

IEC 60245 (all parts), *Rubber insulated cables – Rated voltages up to and including 450/750 V*

<sup>1</sup> There exists a consolidated version (Edition 7.2:2011) which includes IEC 60065:2001 and its Amendment 1 (2005) and Amendment 2 (2010).

IEC 60252-1, *AC motor capacitors – Part 1: General – Performance, testing and rating – Safety requirements – Guidance for installation and operation*

IEC 60320 (all parts), *Appliance couplers for household and similar general purposes*

IEC 60320-1, *Appliance couplers for household and similar general purposes – Part 1: General requirements*

IEC 60335-1:2010, *Household and similar electrical appliances – Safety – Part 1: General requirements*

IEC 60384-14, *Fixed capacitors for use in electronic equipment – Part 14: Sectional specification – Fixed capacitors for electromagnetic interference suppression and connection to the supply mains*

IEC 60417, *Graphical symbols for use on equipment*, available at [http://www.graphical-symbols.info/graphical-symbols/equipment/db1.nsf/\\$enHome?OpenForm](http://www.graphical-symbols.info/graphical-symbols/equipment/db1.nsf/$enHome?OpenForm)

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*<sup>2</sup>

Amendment 1:1999

Amendment 2:2013

IEC 60664-1, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60695-2-11:2000, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products*

IEC 60695-2-13:2010, *Fire hazard testing – Part 2-13: Glowing/hot-wire based test methods – Glow-wire ignition temperature (GWIT) test method for materials*

IEC 60695-10-2:2003, *Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test*

IEC 60695-11-10:2013, *Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods*

IEC 60730-1:2010, *Automatic electrical controls for household and similar use – Part 1: General requirements*

IEC 60825-1:2007, *Safety of laser products – Part 1: Equipment classification and requirements*

IEC 60884 (all parts), *Plugs and socket-outlets for household and similar purposes*

IEC 60906-1, *IEC system of plugs and socket-outlets for household and similar purposes – Part 1: Plugs and socket-outlets 16 A 250 V a.c.*

IEC 60990:1999, *Methods of measurement of touch current and protective conductor current*

IEC 60998-2-1, *Connecting devices for low-voltage circuits for household and similar purposes – Part 2-1: Particular requirements for connecting devices as separate entities with screw-type clamping units*

---

<sup>2</sup> There exists a consolidated version (Edition 2.2:2013) which includes IEC 60529:1989 and its Amendment 1 (1999) and Amendment 2 (2013).

IEC 60998-2-2, *Connecting devices for low-voltage circuits for household and similar purposes – Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units*

IEC 60999-1:1999, *Connecting devices – Electrical copper conductors – Safety requirements for screw-type and screwless-type clamping units – Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm<sup>2</sup> up to 35 mm<sup>2</sup> (included)*

IEC 61000-4-2:2008, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-4-3:2006, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test<sup>3</sup>*  
Amendment 1:2007  
Amendment 2:2010

IEC 61000-4-4:2012, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*

IEC 61000-4-5:2005, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

IEC 61000-4-6:2008, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61000-4-11:2004, *Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests*

IEC 61032:1997, *Protection of persons and equipment by enclosures – Probes for verification*

IEC 61056-1, *General purpose lead-acid batteries (valve-regulated types) – Part 1: General requirements, functional characteristics – Methods of test*

IEC 61058-1:2000, *Switches for appliances – Part 1: General requirements<sup>4</sup>*  
Amendment 1:2001  
Amendment 2:2007

IEC 61210, *Connecting devices – Flat quick-connect terminations for electrical copper conductors – Safety requirements*

IEC 61540:1997, *Electrical accessories – Portable residual current devices without integral overcurrent protection for household and similar use (PRCDs)<sup>5</sup>*  
Amendment 1:1998

IEC 61558-1, *Safety of power transformers, power supplies, reactors and similar products – Part 1: General requirements and tests*

---

<sup>3</sup> There exists a consolidated version (Edition 3.2:2010) which includes IEC 61000-4-3:2006 and its Amendment 1 (2007) and Amendment 2 (2010).

<sup>4</sup> There exists a consolidated version (Edition 3.2:2008) which includes IEC 61058-1:2000 and its Amendment 1 (2001) and Amendment 2 (2007).

<sup>5</sup> There exists a consolidated version (Edition 1.1:1999) which includes IEC 61540:1997 and its Amendment 1 (2001).

IEC 61558-2-4, *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V – Part 2-4: Particular requirements and tests for isolating transformers and power supply units incorporating isolating transformers*

IEC 61558-2-6, *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V – Part 2-6: Particular requirements and tests for safety isolating transformers and power supply units incorporating safety isolating transformers*

IEC 61558-2-16, *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V – Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units*

IEC 61951-1, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Portable sealed rechargeable single cells – Part 1: Nickel-cadmium*

IEC 61951-2, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Portable sealed rechargeable single cells – Part 2: Nickel-metal hydride*

IEC 61960, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Secondary lithium cells and batteries for portable applications*

IEC 61984, *Connectors – Safety requirements and tests*

IEC 62133, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications*

IEC 62233, *Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure*

IEC 62471, *Photobiological safety of lamps and lamp systems*

IEC/TR 62471-2:2009, *Photobiological safety of lamps and lamp systems – Part 2: Guidance on manufacturing requirements relating to non-laser optical radiation safety*

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

ISO 286-2:2010, *Geometrical product specifications (GPS) – ISO code system for tolerances on linear sizes – Part 2: Tables of standard tolerance classes and limit deviations for holes and shafts*

ISO 1463, *Metallic and oxide coatings – Measurement of coating thickness – Microscopical method*

ISO 2178, *Non-magnetic coatings on magnetic substrates – Measurement of coating thickness – Magnetic method*

ISO 2768-1, *General tolerances – Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

ISO 3744, *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 3864-2, *Graphical symbols – Safety colours and safety signs – Part 2: Design principles for product safety labels*

ISO 3864-3, *Graphical symbols – Safety colours and safety signs – Part 3: Design principles for graphical symbols for use in safety signs*

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

ISO 5347 (all parts), *Methods for the calibration of vibration and shock pick-ups*

ISO 5349-1, *Mechanical vibration – Measurement and evaluation of human exposure to hand-transmitted vibration – Part 1: General requirements*

ISO 5349-2, *Mechanical vibration – Measurement and evaluation of human exposure to hand-transmitted vibration – Part 2: Practical guidance for measurement in the workplace*

ISO 7000:2012, *Graphical symbols for use on equipment – Index and synopsis*

ISO 7010, *Graphical symbols – Safety colours and safety signs – Registered safety signs*

ISO 7574-4, *Acoustics – Statistical methods for determining and verifying stated noise emission values of machinery and equipment – Part 4: Methods for stated values for batches of machines*

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

ISO 9772:2012, *Cellular plastics – Determination of horizontal burning characteristics of small specimens subjected to a small flame*

ISO 11201, *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 11203, *Acoustics – Noise emitted by machinery and equipment – Determination of emission sound pressure levels at a work station and at other specified positions from the sound power level*

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

ISO 13849-1, *Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design*

ISO 13850, *Safety of machinery – Emergency stop – Principles for design*

ISO/TR 11690-3, *Acoustics – Recommended practice for the design of low-noise workplaces containing machinery – Part 3: Sound propagation and noise prediction in workrooms*

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

EN 12096, *Mechanical vibration – Declaration and verification of vibration emission values*

ASTM B 258, *Standard specification for standard nominal diameters and cross-sectional areas of AWG sizes of solid round wires used as electrical conductors*

**UL 969, Standard for marking and labeling systems**

NOTE 1 In the United States of America, the following normative reference applies:

US, Code of Federal Regulations (CFR) Title 21, *Food and Drugs*.

NOTE 2 In Canada, the following normative reference applies:

C.R.C., c. 1370, Radiation Emitting Devices Regulations

NOTE 3 In Europe (EN 62841-1), the following normative references apply:

CR 1030-1, *Hand-arm vibration – Guidelines for vibration hazards reduction – Part 1: Engineering methods by design of machinery*

EN ISO 11688-1, *Acoustics – Recommended practice for the design of low-noise machinery and equipment – Part 1: Planning (ISO/TR 11688-1)*

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety –**

**Part 3-8: Particular requirements for transportable single spindle vertical moulders**

**Outils électroportatifs à moteur, outils portables et machines pour jardins et pelouses – Sécurité –**

**Partie 3-8: Exigences particulières pour les toupies monobroches à arbre vertical portables**



## CONTENTS

FOREWORD .....	4
1 Scope .....	6
2 Normative references .....	6
3 Terms and definitions .....	6
4 General requirements .....	10
5 General conditions for the tests .....	10
6 Radiation, toxicity and similar hazards.....	10
7 Classification .....	10
8 Marking and instructions.....	11
9 Protection against access to live parts.....	12
10 Starting .....	12
11 Input and current .....	12
12 Heating.....	13
13 Resistance to heat and fire .....	13
14 Moisture resistance .....	13
15 Resistance to rusting .....	13
16 Overload protection of transformers and associated circuits .....	13
17 Endurance .....	13
18 Abnormal operation .....	13
19 Mechanical hazards.....	14
20 Mechanical strength .....	25
21 Construction .....	31
22 Internal wiring.....	31
23 Components .....	32
24 Supply connection and external flexible cords .....	32
25 Terminals for external conductors.....	32
26 Provision for earthing .....	32
27 Screws and connections .....	32
28 Creepage distances, clearances and distances through insulation.....	32
Annexes .....	33
Annex I (informative) Measurement of noise and vibration emissions.....	33
Annex K (normative) Battery tools and battery packs .....	34
Annex L (normative) Battery tools and battery packs provided with mains connection or non-isolated sources.....	35
Bibliography.....	36
Figure 101 – Example of curved work .....	7
Figure 102 – Example of single spindle vertical moulder .....	8
Figure 103 – Example of stopped straight work .....	8
Figure 104 – Example of straight work .....	9
Figure 105 – Examples of tenoning .....	10
Figure 106 – Run out test of spindle rings .....	16

Figure 107 – Table dimensions .....	17
Figure 108 – Table rings .....	18
Figure 109 – Example of curved work workpiece guiding and cutter block guarding systems .....	20
Figure 110 – Test probe .....	21
Figure 111 – Straight work – example of using pressure devices .....	23
Figure 112 – Definition of fence pressure pad deflection measuring point and directions of application of the test forces (horizontal view).....	27
Figure 113 – Definition of fence pressure pad deflection measuring point and directions of application of the test forces (top view).....	27
Figure 114 – Application of fence pressure pad test force "F" and measurement of displacement "f" (top view).....	27
Figure 115 – Definition of table pressure pad deflection measuring point and directions of application of test forces (horizontal view) .....	28
Figure 116 – Definition of table pressure pad deflection measuring point and directions of application of test forces (vertical view) .....	28
Figure 117 – Definition of the adjustable guard deflection measuring points and directions of application of test forces .....	29
Figure 118 – Definition of guiding steady deflection measuring points and directions of application of test forces .....	30
 Table 4 – Required performance levels .....	13
Table 101 – Tool holder spindle and cutting tool dimensions.....	14
Table 102 – Table dimensions .....	17
Table 103 – Table rings .....	18
Table 104 – Metal saw blade guard characteristics .....	25
Table 105 – Light alloy saw blade guard characteristics.....	26
Table 106 – Fences and table pressure pad displacement .....	28
Table 107 – Adjustable guard deflection .....	29
Table 108 – Guiding steady deflection .....	30
Table I.101 – Noise test conditions for single vertical spindle moulders .....	33

# INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

### Part 3-8: Particular requirements for transportable single spindle vertical moulder

#### 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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 62841-3-8 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:

Draft	Report on voting
116/814/FDIS	116/834/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 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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

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 transportable single spindle vertical moulders.

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.

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](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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 3-8: Particular requirements for transportable single spindle vertical moulders

### 1 Scope

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

*Addition:*

This document applies to transportable **single spindle vertical moulders**, with a maximum **tool holder** diameter of 200 mm, designed to cut wood and analogue materials also covered with plastic laminate or edgings by hand-feed operation.

NOTE 101 Single spindle vertical moulders other than transportable are covered by ISO 19085-6:2024.

### 2 Normative references

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

*Addition:*

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

ISO 286-2:2010, *Geometrical product specifications (GPS) – ISO code system for tolerances on linear sizes – Part 2: Tables of standard tolerance classes and limit deviations for holes and shafts*

## SOMMAIRE

AVANT-PROPOS .....	40
1 Domaine d'application .....	43
2 Références normatives .....	43
3 Termes et définitions .....	43
4 Exigences générales .....	47
5 Conditions générales d'essai .....	47
6 Rayonnement, toxicité et dangers analogues .....	47
7 Classification .....	47
8 Marquage et indications .....	48
9 Protection contre l'accès aux parties actives .....	49
10 Démarrage .....	50
11 Puissance et courant .....	50
12 Echauffements .....	50
13 Résistance à la chaleur et au feu .....	50
14 Résistance à l'humidité .....	50
15 Protection contre la rouille .....	50
16 Protection contre la surcharge des transformateurs et des circuits associés .....	50
17 Endurance .....	50
18 Fonctionnement anormal .....	51
19 Dangers mécaniques .....	51
20 Résistance mécanique .....	63
21 Construction .....	69
22 Conducteurs internes .....	69
23 Composants .....	70
24 Raccordement au réseau et câbles souples extérieurs .....	70
25 Bornes pour conducteurs externes .....	70
26 Dispositions de mise à la terre .....	70
27 Vis et connexions .....	70
28 Lignes de fuite, distances d'isolation et distances à travers l'isolation .....	70
Annexes .....	71
Annexe I (informative) Mesurage des émissions acoustiques et des vibrations .....	71
Annexe K (normative) Outils fonctionnant sur batteries et blocs de batteries .....	72
Annexe L (normative) Outils fonctionnant sur batteries et blocs de batteries équipés d'une connexion avec le réseau ou avec des sources non isolées .....	73
Bibliographie .....	74
Figure 101 – Exemple de travail en courbe .....	44
Figure 102 – Exemple de toupie monobroche à arbre vertical .....	45
Figure 103 – Exemple de travail arrêté en ligne droite .....	45
Figure 104 – Exemple travail en ligne droite .....	46
Figure 105 – Exemple de tenonnage .....	47
Figure 106 – Essai de voile des bagues d'arbre .....	54

Figure 107 – Dimensions de la table .....	55
Figure 108 – Rondelles amovibles .....	56
Figure 109 – Exemple de systèmes de guidage de la pièce à usiner et de protection de l'arbre porte-lames pour un travail en courbe .....	58
Figure 110 – Calibre d'essai .....	59
Figure 111 – Travail en ligne droite – exemple d'utilisation des dispositifs presseurs .....	61
Figure 112 – Définition du point de mesure de la déviation du patin presseur de guide et directions d'application des forces d'essai (vue horizontale).....	65
Figure 113 – Définition du point de mesure de la déviation du patin presseur de guide et directions d'application des forces d'essai (vue de dessus) .....	65
Figure 114 – Application de la force d'essai "F" sur le guide et mesurage du déplacement "f" (vue de dessus).....	65
Figure 115 – Définition du point de mesure de la déviation du patin presseur de table et directions d'application des forces d'essai (vue horizontale).....	66
Figure 116 – Définition du point de mesure de la déviation du patin presseur de table et directions d'application des forces d'essai (vue verticale).....	66
Figure 117 – Définition des points de mesure de la déviation du protecteur réglable et directions d'application des forces d'essai.....	67
Figure 118 – Définition des points de mesure de la déviation du guide à lunette et directions d'application des forces d'essai.....	68
 Tableau 4 – Niveaux de performance exigés.....	51
Tableau 101 – Dimensions de l'arbre porte-outil et de l'outil de coupe .....	52
Tableau 102 – Dimensions de la table .....	55
Tableau 103 – Rondelles amovibles.....	55
Tableau 104 – Caractéristiques des protecteurs de lame en métal.....	64
Tableau 105 – Caractéristiques des protecteurs de lame en alliage léger .....	64
Tableau 106 – Déplacement des patins presseurs de guide et de table .....	66
Tableau 107 – Déviation du protecteur réglable .....	67
Tableau 108 – Déviation du guide à lunette .....	68
Tableau I.101 – Conditions d'essai acoustique pour les toupies monobroches à arbre vertical.....	71

## COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

### OUTILS ÉLECTROPORTATIFS À MOTEUR, OUTILS PORTABLES ET MACHINES POUR JARDINS ET PELOUSES – SÉCURITÉ –

#### Partie 3-8: Exigences particulières pour les toupies monobroches à arbre vertical portables

#### AVANT-PROPOS

- 1) La Commission Électrotechnique Internationale (IEC) est une organisation mondiale de normalisation composée de l'ensemble des comités électrotechniques nationaux (Comités nationaux de l'IEC). L'IEC a pour objet de favoriser la coopération internationale pour toutes les questions de normalisation dans les domaines de l'électricité et de l'électronique. À cet effet, l'IEC – entre autres activités – publie des Normes internationales, des Spécifications techniques, des Rapports techniques, des Spécifications accessibles au public (PAS) et des Guides (ci-après dénommés "Publication(s) de l'IEC"). Leur élaboration est confiée à des comités d'études, aux travaux desquels tout Comité national intéressé par le sujet traité peut participer. Les organisations internationales, gouvernementales et non gouvernementales, en liaison avec l'IEC, participent également aux travaux. L'IEC collabore étroitement avec l'Organisation Internationale de Normalisation (ISO), selon des conditions fixées par accord entre les deux organisations.
- 2) Les décisions ou accords officiels de l'IEC concernant les questions techniques représentent, dans la mesure du possible, un accord international sur les sujets étudiés, étant donné que les Comités nationaux de l'IEC intéressés sont représentés dans chaque comité d'études.
- 3) Les Publications de l'IEC se présentent sous la forme de recommandations internationales et sont agréées comme telles par les Comités nationaux de l'IEC. Tous les efforts raisonnables sont entrepris afin que l'IEC s'assure de l'exactitude du contenu technique de ses publications; l'IEC ne peut pas être tenue responsable de l'éventuelle mauvaise utilisation ou interprétation qui en est faite par un quelconque utilisateur final.
- 4) Dans le but d'encourager l'uniformité internationale, les Comités nationaux de l'IEC s'engagent, dans toute la mesure possible, à appliquer de façon transparente les Publications de l'IEC dans leurs publications nationales et régionales. Toutes divergences entre toutes Publications de l'IEC et toutes publications nationales ou régionales correspondantes doivent être indiquées en termes clairs dans ces dernières.
- 5) L'IEC elle-même ne fournit aucune attestation de conformité. Des organismes de certification indépendants fournissent des services d'évaluation de conformité et, dans certains secteurs, accèdent aux marques de conformité de l'IEC. L'IEC n'est responsable d'aucun des services effectués par les organismes de certification indépendants.
- 6) Tous les utilisateurs doivent s'assurer qu'ils sont en possession de la dernière édition de cette publication.
- 7) Aucune responsabilité ne doit être imputée à l'IEC, à ses administrateurs, employés, auxiliaires ou mandataires, y compris ses experts particuliers et les membres de ses comités d'études et des Comités nationaux de l'IEC, pour tout préjudice causé en cas de dommages corporels et matériels, ou de tout autre dommage de quelque nature que ce soit, directe ou indirecte, ou pour supporter les coûts (y compris les frais de justice) et les dépenses découlant de la publication ou de l'utilisation de cette Publication de l'IEC ou de toute autre Publication de l'IEC, ou au crédit qui lui est accordé.
- 8) L'attention est attirée sur les références normatives citées dans cette publication. L'utilisation de publications référencées est obligatoire pour une application correcte de la présente publication.
- 9) L'IEC attire l'attention sur le fait que la mise en application du présent document peut entraîner l'utilisation d'un ou de plusieurs brevets. L'IEC ne prend pas position quant à la preuve, à la validité et à l'applicabilité de tout droit de brevet revendiqué à cet égard. À la date de publication du présent document, l'IEC n'avait pas reçu notification qu'un ou plusieurs brevets pouvaient être nécessaires à sa mise en application. Toutefois, il y a lieu d'avertir les responsables de la mise en application du présent document que des informations plus récentes sont susceptibles de figurer dans la base de données de brevets, disponible à l'adresse <https://patents.iec.ch>. L'IEC ne saurait être tenue pour responsable de ne pas avoir identifié de tels droits de brevets.

L'IEC 62841-3-8 a été établie par le comité d'études 116 de l'IEC: Sécurité des outils électroportatifs à moteur. Il s'agit d'une Norme internationale.

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
116/814/FDIS	116/834/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). Les principaux types de documents développés par l'IEC sont décrits plus en détail sous [www.iec.ch/publications/](http://www.iec.ch/publications/).

Le présent document doit être utilisé conjointement avec l'IEC 62841-1:2014.

Le présent document complète ou modifie les articles correspondants de l'IEC 62841-1 de façon à la transformer en norme IEC: Exigences particulières pour les toupies monobroches à arbre vertical portables.

Lorsqu'un paragraphe particulier de l'IEC 62841-1 n'est pas mentionné dans le présent document, ce paragraphe s'applique pour autant que cela soit raisonnable. Lorsque le présent document mentionne "addition", "modification" ou "remplacement", le texte correspondant de l'IEC 62841-1 doit être adapté en conséquence.

Les caractères d'imprimerie suivants sont utilisés:

- exigences: caractères romains;
- modalités d'essais: *caractères italiques*;
- termes définis à l'Article 3: **caractères gras**;
- notes: petits caractères romains.

Les paragraphes, notes, tableaux et figures qui s'ajoutent à ceux de l'IEC 62841-1 sont numérotés à partir de 101.

Les paragraphes, notes, tableaux et figures en Annexe K et Annexe L qui s'ajoutent à ceux du corps principal du présent document sont numérotés à partir de 301.

Une liste de toutes les parties de la série IEC 62841, publiées sous le titre général: *Outils électroportatifs à moteur, outils portables et machines pour jardins et pelouses – Sécurité*, se trouve sur le site web de l'IEC.

Le comité a décidé que le contenu de ce document ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous [webstore.iec.ch](http://webstore.iec.ch) dans les données relatives au document recherché. À cette date, le document sera

- reconduit,
- supprimé, ou
- révisé.

NOTE L'attention des Comités nationaux est attirée sur le fait que les fabricants d'appareils et les organismes d'essai peuvent avoir besoin d'une période transitoire après la publication d'une nouvelle publication IEC, ou d'une publication amendée ou révisée, pour fabriquer des produits conformes aux nouvelles exigences et pour adapter leurs équipements aux nouveaux essais ou aux essais révisés.

Le comité recommande que le contenu de cette publication soit adopté pour application nationale au plus tôt 36 mois après la date de publication.

## **OUTILS ÉLECTROPORTATIFS À MOTEUR, OUTILS PORTABLES ET MACHINES POUR JARDINS ET PELOUSES – SÉCURITÉ –**

### **Partie 3-8: Exigences particulières pour les toupies monobroches à arbre vertical portables**

#### **1 Domaine d'application**

L'Article 1 de l'IEC 62841-1:2014 s'applique avec l'exception suivante:

*Addition:*

Le présent document s'applique aux **toupies monobroches à arbre vertical** portables dont le diamètre maximal du **porte-outil** est de 200 mm, qui sont destinées à couper du bois et des matériaux analogues, y compris ceux recouverts de plastique stratifié ou bordures plastiques, par opération manuelle.

NOTE 101 Les **toupies monobroches à arbre vertical** non portables sont couvertes par l'ISO 19085-6:2024.

#### **2 Références normatives**

L'Article 2 de l'IEC 62841-1:2014 s'applique, avec l'exception suivante:

*Addition:*

IEC 62841-1:2014, *Outils électroportatifs à moteur, outils portables et machines pour jardins et pelouses – Sécurité – Partie 1: Règles générales*

ISO 286-2:2010, *Spécification géométrique des produits (GPS) – Système de codification ISO pour les tolérances sur les tailles linéaires – Partie 2: Tableaux des classes de tolérance normalisées et des écarts limites des alésages et des arbres*