

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety –  
Part 3-1: Particular requirements for transportable table saws**

**Outils électroportatifs à moteur, outils transportables et machines pour jardins et pelouses – Sécurité –  
Partie 3-1: Exigences particulières pour les scies circulaires à table transportables**



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# INTERNATIONAL STANDARD

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**Part 3-1: Particular requirements for transportable table saws**

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## CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references .....	6
3 Terms and definitions .....	7
4 General requirements .....	10
5 General conditions for the tests .....	11
6 Radiation, toxicity and similar hazards.....	11
7 Classification.....	11
8 Marking and instructions.....	11
9 Protection against access to live parts.....	16
10 Starting .....	17
11 Input and current .....	17
12 Heating.....	17
13 Resistance to heat and fire.....	17
14 Moisture resistance .....	17
15 Resistance to rusting.....	17
16 Overload protection of transformers and associated circuits .....	17
17 Endurance.....	17
18 Abnormal operation .....	17
19 Mechanical hazards.....	18
20 Mechanical strength .....	25
21 Construction .....	27
22 Internal wiring.....	37
23 Components .....	37
24 Supply connection and external flexible cords .....	37
25 Terminals for external conductors.....	37
26 Provision for earthing .....	37
27 Screws and connections .....	37
28 Creepage distances, clearances and distances through insulation.....	37
Annexes .....	47
Annex I (informative) Measurement of noise and vibration emissions.....	47
Annex K (normative) Battery tools and battery packs .....	48
Bibliography.....	49
Figure 101 – Marking of the riving knife .....	38
Figure 102 – Marking of table inserts for cutting tools other than a single saw blade.....	38
Figure 103 – Test probe.....	39
Figure 104 – Guarded area of the saw blade.....	39
Figure 105 – Probe application to the saw blade guard .....	40
Figure 106 – Height range of the riving knife tip.....	40
Figure 107 – Distance between riving knife and saw blade .....	41

Figure 108 – Pull test for riving knife and extended riving knife .....	42
Figure 109 – Side pull test for riving knife and extended riving knife .....	42
Figure 110 – Push stick .....	43
Figure 111 – Push stick force test .....	43
Figure 112 – Bevel angle measurement .....	44
Figure 113 – Dimensions of the saw table .....	44
Figure 114 – Minimum distance from the front edge of the table top to the front edge of the saw blade guard .....	45
Figure 115 – Test of an anti-kickback device .....	45
Figure 116 – Flange characteristics .....	46
Table 4 – Required performance levels .....	18
Table I.101 – Noise test conditions for table saws .....	47

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

**Part 3-1: Particular requirements for transportable table saws**

FOREWORD

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International Standard IEC 62841-3-1 has been prepared by IEC technical committee 116: Safety of motor-operated electric tools.

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

FDIS	Report on voting
116/168/FDIS	116/182/RVD

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

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

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

This Part 3-1 supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC Standard: Particular requirements for transportable table saws.

Where a particular subclause of Part 1 is not mentioned in this Part 3-1, that subclause applies as far as reasonable. 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 defined in Clause 3 are printed in **bold typeface**.

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.

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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

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- 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.

The contents of the corrigendum of November 2015 have been included in this copy.

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

## Part 3-1: Particular requirements for transportable table saws

### 1 Scope

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

*Addition:*

This part of IEC 62841 applies to transportable **table saws** with

- a toothed single blade; or
- stacked blades that cut a single groove or slot; or
- a moulding head cutter

intended for cutting wood and analogous materials, plastics and nonferrous metals except magnesium with a saw blade diameter between 105 mm and 315 mm, which hereinafter may simply be referred to as saw or tool.

This standard does not apply to **table saws** intended to cut other metals, such as magnesium, steel and iron. This standard does not apply to **table saws** with an automatic feeding device.

This standard does not apply to **saws designed for use with abrasive wheels**.

NOTE 101 Saws designed for use with abrasive wheels as cut-off machines are covered by IEC 62841-3-10.

This standard does not apply to **table saws** with more than one spindle such as for a scoring blade.

NOTE 102 In Europe (EN 62841-3-1), the following conditions apply:

This standard applies to **table saws** having a mass of:

- maximum 25 kg for tools capable of being lifted by hand by one person;
- maximum 50 kg for tools capable of being lifted by hand by two persons.

This standard does not apply to stationary **table saws**.

### 2 Normative references

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

*Addition:*

ISO 180, *Plastics – Determination of Izod impact strength*

NOTE In Europe (EN 62841-3-1), the following normative reference applies:

EN 847-1, *Tools for woodworking – Safety requirements – Part 1: Milling tools, circular saw blade*



### 3 Terms and definitions

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

*Addition:*

#### 3.101

##### **anti-kickback device**

device that allows the movement of the workpiece in the cutting direction but reduces the likelihood of the rapid movement of the workpiece in the direction opposite of feed

#### 3.102

##### **bevel angle**

angular displacement of the saw blade plane with respect to the **table top** plane, the position of the saw blade plane that is perpendicular to the **table top** being the 0° bevel position

#### 3.103

##### **cross cutting**

any cutting operation performed utilizing a **cross-cutting fence** to guide the workpiece.

Note 1 to entry: For natural wood, a cross cut is performed predominantly in a perpendicular direction with the grain of the wood; for engineered materials, a cross cut is performed perpendicular to the length of the workpiece.

#### 3.104

##### **cutting capacity**

for any depth setting of the saw blade at 0° bevel position, the height of the highest saw blade tooth tip above the **table top** (standards.iteh.ai)

Note 1 to entry: For any depth setting of the saw blade, at **bevel angles** other than 0°, the height of the highest saw blade tooth tip above the **table top**, but only the side of the tooth closest to the table is considered.

##### 3.104.1

##### **maximum cutting capacity**

**cutting capacity** at the maximum depth setting of the saw blade and, unless otherwise specified, at 0° bevel

#### 3.105

##### **cutting edge zone**

the outer 20 % of the radius of the saw blade

#### 3.106

##### **D**

specified diameter of the saw blade

#### 3.107

##### **dadoing**

**non-through cutting** operation performed with a stack of specially designed saw blades of a desired thickness to produce a rectangular sided slot in the workpiece

#### 3.108

##### **fence**

device to guide or position the workpiece during the cutting process

##### 3.108.1

##### **cross-cutting fence**

**fence** that is designed to move parallel with the plane of the saw blade during the cutting process or to position the workpiece for a **table saw with sliding function**

Note 1 to entry: The **fence** may have provisions to adjust the workpiece guiding face laterally and may have **mitre angle** capability.

Note 2 to entry: A **cross-cutting fence** with **mitre angle** capability is also known as a mitreing **fence** or mitre gauge.

### 3.108.2

#### **rip fence**

**fence** that has the workpiece guiding face parallel with the plane of the saw blade and can be set to a desired distance from the saw blade

### 3.109

#### **grooving**

series of repeated non-through cuts of same or different depth and spacing from each other, performed with an ordinary saw blade, to remove material for the purpose of creating a slot or for shaping or bending the workpiece

Note 1 to entry: **Grooving** is also known as slotting or kerfing.

### 3.110

#### **kerf width**

distance between two parallel planes that are touching the opposing sides of at least three saw blade tooth tips

### 3.111

#### **kickback**

sudden reaction to a pinched, jammed or misaligned workpiece with respect to the saw blade, which causes the workpiece to be propelled by the saw blade

### 3.112

#### **mitre angle**

angular displacement of the plane of the **cross-cutting fence** with respect to the cutting line, the position of the saw blade plane that is perpendicular to the plane of the **cross-cutting fence** being the 0° mitre position

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### 3.113

#### **moulding head cutting**

**non-through cutting** operation performed with a specially shaped cutting device which produces a corresponding shape of the cutter on the bottom surface of the workpiece, predominantly used for decoration

Note 1 to entry: **Moulding head cutting** is also known as shaping.

### 3.114

#### **non-removable (device)**

device that is welded, riveted or utilizing non-standard simple fasteners and cannot be removed with ordinary household tools, such as slotted or Philips-tip screwdrivers and/or simple wrenches

### 3.115

#### **non-through cutting**

any cutting operation where the cutting device does not protrude beyond the thickness of the workpiece

### 3.116

#### **plowing**

**non-through cutting** operation performed by moving a workpiece over an ordinary saw blade utilizing a special **fence** that is not parallel to the cutting line of the saw blade, and in very small increments increasing the depth of the cut after each pass to shave off large, arcing surface areas

Note 1 to entry: **Plowing** is also known as cove cutting.

**3.117****plunge cutting**

**non-through cutting** operation starting at a location other than the edge of a workpiece

Note 1 to entry: The cut is typically performed by first securing the workpiece over the stationary saw blade lowered below the **table top** and then by slowly raising the rotating saw blade into the workpiece. The saw blade can be raised to fully cut through the thickness of the workpiece before the workpiece is advanced by guiding it with a rip or **cross-cutting fence**.

**3.118****quadrant**

portion of the saw blade section above the plane of the **table top** with a perpendicular boundary line going through the centre of the saw blade

Note 1 to entry: The saw blade **quadrant** from the centre of the saw blade to the intersect point of the saw blade with the **table top** at the front of the **table saw** is called the “front **quadrant**”, the saw blade **quadrant** at the back of the **table saw** is called the “rear **quadrant**”. See Figure 107.

**3.119****rabbeting**

**non-through cutting** operation creating a rectangular notch in the edge of a workpiece where the notch is either cut by dado blades or by two non-through cuts perpendicular to each other, performed with an ordinary saw blade on the side and the bottom edge of the workpiece

Note 1 to entry: **Rabbeting** is also known as rebating.

**3.120****resawing**

combination of two non-through cuts performed with an ordinary saw blade in the same plane but on opposite sides of a workpiece that result in reducing the thickness of the workpiece

**3.121****rip cutting**

any cutting operation performed utilizing a **rip fence** to guide the workpiece

Note 1 to entry: For natural wood, a rip cut is performed predominantly in a parallel direction with the grain of the wood; for engineered materials, a rip cut is performed parallel with the length of the workpiece.

**3.122****riving knife**

device located behind and in the plane of the saw blade, within the **cutting capacity** of the saw blade and in a fixed proximity to the saw blade through an entire depth of cut and **bevel angle** operating range of the saw blade, with an intended function to reduce the risk of saw blade pinching and binding

**3.123****extended riving knife**

device, in all aspects identical to a **riving knife** except it extends above the **maximum cutting capacity** of the saw blade to allow the mounting of a **saw blade guard** and/or an **anti-kickback device**

**3.123.1****adjustable extended riving knife**

device designed to function at least in one position as an **extended riving knife** and in a second position as a **riving knife**

**3.123.2****fixed extended riving knife**

**extended riving knife** that is fixed in position

**3.124****saw blade guard**

device mounted above the table such that a workpiece will pass between the mounted device and the table, designed to minimize inadvertent blade contact by the user

**3.124.1****over-arm saw blade guard**

**saw blade guard** suspended from a device above the table such that the mounting structure for the **saw blade guard** is not in the workable range of the **table top** plane

**3.125****table saw**

tool with a rotating toothed saw blade that projects through a slot in a table which supports and positions the workpiece, where the workpiece is fed towards the saw blade and the motor and drive assembly for the saw blade are located below the **table top**

**3.125.1****table saw with sliding function**

tool with a rotating toothed saw blade that projects through a slot in a table which supports and positions the workpiece, where the motor and drive assembly for the saw blade are located below the **table top** and mounted to a linear carriage system capable of advancing the saw blade drive assembly and where the workpiece is held stationary with the **cross-cutting fence** while the cutting saw blade is advanced through the workpiece

Note 1 to entry: The saw blade is either returned manually or automatically. These saws have a separate lockable rip-cutting position.

Note 2 to entry: These saws are also known as pull type saws.

**3.126****table top**

surface of the saw table which is in contact with and supports the workpiece

**3.127****tapered cut**

cut performed utilizing a fixture to hold the workpiece such that the straight edge of the workpiece is not parallel to the cutting line of the saw blade

Note 1 to entry: The fixture is guided by the **rip fence**.

**3.128****through cutting**

any cutting operation where the saw blade protrudes beyond the thickness of the workpiece

**3.129****zero clearance table insert**

table insert that is manufactured without any slot for the saw blade, with the intention that the slot in the table insert will be cut after installation in the **table saw** by the actual saw blade installed in the **table saw**

**4 General requirements**

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

**4.101** Throughout the remaining part of this document, unless otherwise explicitly stated, whenever a requirement or a reference is made to

- “saw blade”:  
this shall equally apply to any “saw blade” as specified in accordance with 8.14.2 a);

- “**riving knife**”:  
this shall equally apply to “**extended riving knife**”, but not vice versa.  
This terminology rule does not apply to “**riving knife position**” i.e. the “**riving knife position**” cannot be substituted with an “**extended riving knife position**”;
- “force” as multiple of **D**:  
the force shall be measured in N and the saw blade diameter **D** shall be measured in mm.

## 5 General conditions for the tests

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

### 5.17 Addition:

*The mass of the tool shall include the **saw blade guard, anti-kickback device, if any, riving knife, rip fence, cross-cutting fence and the push stick.***

*Any additional parts such as leg sets or carrying means that are required in accordance with the user instructions shall be included in the mass.*

## 6 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable.

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## 7 Classification

This clause of Part 1 is applicable.

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## 8 Marking and instructions

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

### 8.1 Addition:

**Table saws** shall be marked with:

- rated no-load speed of the output spindle.

### 8.3 Addition:

**Table saws** shall be marked with:

- saw blade diameter.

**8.3.101 Table saws** shall be marked with the direction of rotation of the spindle, indicated in a visible location on the tool in the vicinity of the saw blade, such as on the **saw blade guard, riving knife** or a table insert, by an arrow raised or recessed or by any other means no less visible and indelible.

*Compliance is checked by inspection.*

**8.3.102** The **riving knife** shall be permanently marked, e.g. by engraving, stamping or etching, with its thickness and, as specified in Figure 101, with the saw blade diameter **D**, saw blade body thicknesses, and **kerf widths** that can be used with this **riving knife**.

*Compliance is checked by inspection.*

**8.3.103** The saw blade(s) provided with the tool shall be marked with a maximum operating speed and with an arrow indicating the correct direction of rotation.

*Compliance is checked by inspection.*

**8.3.104** Table inserts for cutting tools other than single saw blades, see 21.101.6, shall be marked as illustrated in Figure 102.

*Compliance is checked by inspection.*

#### 8.14.1 Addition:

The additional safety instructions as specified in 8.14.1.101 shall be given. This part may be printed separately from the “General Power Tool Safety Warnings”.

#### 8.14.1.101 Safety instructions for table saws

##### 1) Guarding related warnings

- a) **Keep guards in place. Guards must be in working order and be properly mounted. A guard that is loose, damaged, or is not functioning correctly must be repaired or replaced.**
- b) **Always use saw blade guard, riving knife and anti-kickback device for every through-cutting operation. For through-cutting operations where the saw blade cuts completely through the thickness of the workpiece, the guard and other safety devices help reduce the risk of injury.**

NOTE 1 If an **anti-kickback device** is not provided, the phrase “and **anti-kickback device**” is omitted.

NOTE 2 At the manufacturer’s discretion, the term “**anti-kickback device**” can be replaced by an appropriate term such as “**anti-kickback pawls**” or “**anti-kickback rollers**”.

NOTE 3 The above warning is omitted, if the **table saw** is designed with a **non-removable fixed extended riving knife** that has a **non-removable** guarding system.

- c) **Immediately reattach the guarding system after completing an operation (such as rabbeting, dadoing or resawing cuts) which requires removal of the guard, riving knife and/or anti-kickback device. The guard, riving knife, and anti-kickback device help to reduce the risk of injury.**

NOTE 1 The term “**rabbeting**” can be substituted by “rebating”.

NOTE 2 If **dadoing** or **resawing** cuts are not permitted, the term “**dadoing** or **resawing** cuts” is omitted.

NOTE 3 If an **anti-kickback device** is not provided, the phrase “**anti-kickback device**” is omitted.

NOTE 4 At the manufacturer’s discretion, the term “**anti-kickback device**” can be replaced by an appropriate term such as “**anti-kickback pawls**” or “**anti-kickback rollers**”.

NOTE 5 The above warning is omitted, if the **table saw** is designed with a **non-removable fixed extended riving knife** that has a **non-removable** guarding system.


- d) **Make sure the saw blade is not contacting the guard, riving knife or the workpiece before the switch is turned on. Inadvertent contact of these items with the saw blade could cause a hazardous condition.**
- e) **Adjust the riving knife as described in this instruction manual. Incorrect spacing, positioning and alignment can make the riving knife ineffective in reducing the likelihood of kickback.**
- f) **For the riving knife and anti-kickback device to work, they must be engaged in the workpiece. The riving knife and anti-kickback device are ineffective when cutting workpieces that are too short to be engaged with the riving knife and anti-kickback device. Under these conditions a kickback cannot be prevented by the riving knife and anti-kickback device.**

NOTE 1 If an **anti-kickback device** is not provided, the phrase “and **anti-kickback device**” is omitted.

NOTE 2 At the manufacturer's discretion, the term "anti-kickback device" can be replaced by an appropriate term such as "anti-kickback pawls" or "anti-kickback rollers".

- g) **Use the appropriate saw blade for the riving knife.** *For the riving knife to function properly, the saw blade diameter must match the appropriate riving knife and the body of the saw blade must be thinner than the thickness of the riving knife and the cutting width of the saw blade must be wider than the thickness of the riving knife.*

## 2) Cutting procedures warnings

- a)  **DANGER: Never place your fingers or hands in the vicinity or in line with the saw blade.** *A moment of inattention or a slip could direct your hand towards the saw blade and result in serious personal injury.*
- b) **Feed the workpiece into the saw blade or cutter only against the direction of rotation.** *Feeding the workpiece in the same direction that the saw blade is rotating above the table may result in the workpiece, and your hand, being pulled into the saw blade.*

NOTE If cutters other than the saw blade are not permitted in accordance with 8.14.2 then "or cutter" is omitted.

- c) **Never use the mitre gauge to feed the workpiece when ripping and do not use the rip fence as a length stop when cross cutting with the mitre gauge.** *Guiding the workpiece with the rip fence and the mitre gauge at the same time increases the likelihood of saw blade binding and kickback.*
- d) **When ripping, always apply the workpiece feeding force between the fence and the saw blade. Use a push stick when the distance between the fence and the saw blade is less than 150 mm, and use a push block when this distance is less than 50 mm.** *"Work helping" devices will keep your hand at a safe distance from the saw blade.*
- e) **Use only the push stick provided by the manufacturer or constructed in accordance with the instructions.** *This push stick provides sufficient distance of the hand from the saw blade.*
- f) **Never use a damaged or cut push stick. A damaged push stick may break causing your hand to slip into the saw blade.**
- g) **Do not perform any operation "freehand". Always use either the rip fence or the mitre gauge to position and guide the workpiece.** *"Freehand" means using your hands to support or guide the workpiece, in lieu of a rip fence or mitre gauge. Freehand sawing leads to misalignment, binding and kickback.*
- h) **Never reach around or over a rotating saw blade.** *Reaching for a workpiece may lead to accidental contact with the moving saw blade.*
- i) **Provide auxiliary workpiece support to the rear and/or sides of the saw table for long and/or wide workpieces to keep them level.** *A long and/or wide workpiece has a tendency to pivot on the table's edge, causing loss of control, saw blade binding and kickback.*
- j) **Feed workpiece at an even pace. Do not bend or twist the workpiece. If jamming occurs, turn the tool off immediately, unplug the tool then clear the jam.** *Jamming the saw blade by the workpiece can cause kickback or stall the motor.*
- k) **Do not remove pieces of cut-off material while the saw is running.** *The material may become trapped between the fence or inside the saw blade guard and the saw blade pulling your fingers into the saw blade. Turn the saw off and wait until the saw blade stops before removing material.*
- l) **Use an auxiliary fence in contact with the table top when ripping workpieces less than 2 mm thick.** *A thin workpiece may wedge under the rip fence and create a kickback.*

## 3) Kickback causes and related warnings

Kickback is a sudden reaction of the workpiece due to a pinched, jammed saw blade or misaligned line of cut in the workpiece with respect to the saw blade or when a part of the workpiece binds between the saw blade and the rip fence or other fixed object.