IEC 62841-3-15

Edition 1.0 2024-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 3-15: Particular requirements for transportable magnetic drills

Outils électroportatifs à moteur, outils portables et machines pour jardins et pelouses – Sécurité – Partie 3-15: Exigences particulières pour les perceuses magnétiques portables

IEC 62841-3-15:2024-08(en-fr)

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

Part 3-15: Particular requirements for transportable magnetic drills

FOREWORD

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IEC 62841-3-15 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
116/801/FDIS	116/823/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. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

This Part 3-15 is to be used in conjunction with the first edition of IEC 62841-1 (2014).

This Part 3-15 supplements or modifies the corresponding clauses in IEC 62841-1:2014, so as to convert it into the IEC Standard: Particular requirements for transportable magnetic drills.

Where a particular subclause of IEC 62841-1:2014 is not mentioned in this Part 3-15, that subclause applies as far as relevant. Where this document states "addition", "modification" or "replacement", the relevant text in IEC 62841-1:2014 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;
– terms defined in Clause 3: in **bold typeface**.

Subclauses, notes, tables and figures which are additional to those in IEC 62841-1:2014, except as described below for Annex K and Annex L, 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 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 document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, 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 3-15: Particular requirements for transportable magnetic drills

1 Scope

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

Addition:

This document applies to transportable **magnetic drills** which can include a **liquid system**.

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

3 Terms and definitions

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

Addition:

3.101
drill unit
assembly consisting of a motor and a fitting for attachment to a **magnetic drill stand**

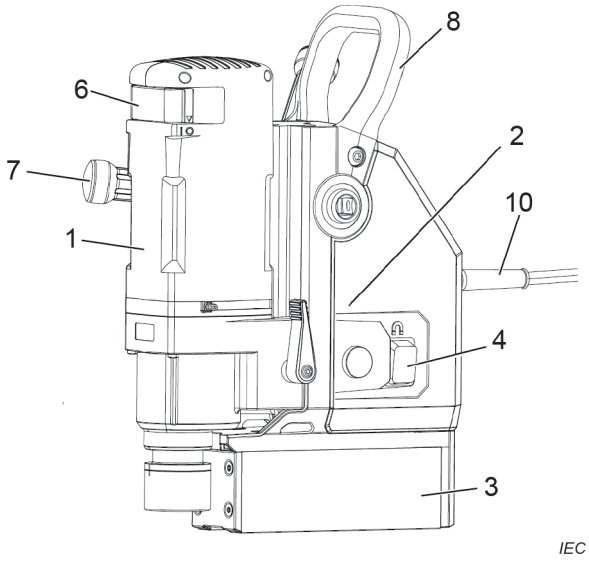
3.102
magnetic drill
tool consisting of an assembly of a **drill unit** and a **magnetic drill stand** designed to cut ferrous metal by means of a cutter (e.g. drill bit, hole saw or linear cutter)

Note 101 to entry: See Figure 101.

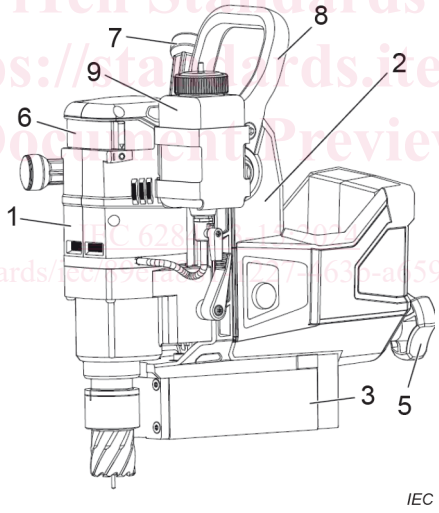
3.103
magnetic drill stand
device for supporting the **drill unit** in its operating position which is attached to the workpiece by means of a permanent magnet or an electromagnet

3.104
magnetic means
device using magnetic force to secure the **magnetic drill stand** to the workpiece

3.105
separable magnetic drill stand
magnetic drill stand intended to be separated from the **drill unit** and where the **drill unit** supply is provided by the **magnetic drill stand**



a) Example of a magnetic drill using an electromagnet as a magnetic means



b) Example of a magnetic drill using a permanent magnet as a magnetic means

Key

1 **drill unit**
2 **magnetic drill stand**
3 **magnetic means**
4 **magnetic means** actuator (electromagnet)
5 **magnetic means** actuator (permanent magnet)
6 **drill unit power switch**
7 **drill unit** feed handle
8 transportation (carry) handle
9 lubrication bottle
10 **supply cord**

Figure 101 – Examples of a magnetic drill

4 General requirements

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

5 General conditions for the tests

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

5.5 *Addition:*

*For **drill units** which have both a mechanical means of setting different ranges of speed and an electronic means of setting the speed within a given range, the mechanical device is adjusted to the lowest range possible and the electronic device is adjusted to the highest setting within the given range.*

5.17 *Replacement:*

*If a requirement is based upon the mass of the tool, the mass shall be determined without the **supply cord**, but shall include the **drill unit**, the drill chuck and the **magnetic drill stand**. Liquid containers, if any, shall be empty.*

6 Radiation, toxicity and similar hazards

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

7 Classification

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

8 Marking and instructions

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

8.1 *Replacement:*

Magnetic drills with a **magnetic drill stand** that is not a **separable magnetic drill stand** and **separable magnetic drill stands** shall be marked with rating information as follows:

– **rated voltage**(s) or **rated voltage range**, in volts. Tools for star-delta connection shall be clearly marked with the two **rated voltages** (for example 230 Δ/ 400 Y). A tool that complies with this standard for a voltage range, may also be marked with any single voltage or smaller voltage range within that range;

– symbol for nature of supply, unless the **rated frequency(ies)** or **rated frequency range** is marked. The symbol for nature of supply shall be placed next to the marking for **rated voltage**;

– **rated input**, in watts or **rated current**, in amperes. The **rated input** or **rated current** to be marked on the tool is the total maximum input or current that can be drawn from external circuit at the same time. If a tool has alternative components which can be selected by a **control device**, the **rated input** or **rated current** is that corresponding to the highest loading possible;

– symbol for **class II construction**, for **class II tools** only;

– IP number according to degree of protection against ingress of water other than IPX0. If the first numeral for the IP numbering is omitted, the omitted numeral shall be replaced by the letter X, for example IPX5.

Drill units intended to be used with a **separable magnetic drill stand** shall be marked with rating information as follows:

– input, in watts or current, in amperes. The input or current to be marked on the **drill unit** is the total maximum input or current that can be drawn from the **magnetic drill stand**.

Drill units intended to be used with a **separable magnetic drill stand** shall not be marked as a **class II tool**.

8.2 *Modification:*

This subclause of IEC 62841-1:2014 is applicable for

– **magnetic drills** with a **magnetic drill stand** that is not a **separable magnetic drill stand**; and
– **separable magnetic drill stands**; and
– **drill units** intended to be used with a **separable magnetic drill stand**.

Addition:

Magnetic drill stands shall be marked with the following safety warnings:

– "⚠ WARNING – Do not use this tool if you or any bystanders have a cardiac pacemaker or other medical implants" or symbol P007 of ISO 7010; and
– "⚠ WARNING – Always use the safety strap when operating the tool" or a symbol that is described in the instruction manual.

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 magnetic drills

a) **Do not use this tool if you or any bystanders have a cardiac pacemaker or other medical implants.** *Cardiac pacemakers and other medical implants may malfunction due to magnetic fields emitted by the tool, which may result in personal injury.*

b) **Always check the safety strap for wear or damage before each use.** *A worn or damaged safety strap may fail unexpectedly during use and may result in personal injury.*

NOTE 101 It is possible to replace the term "strap" with "chain" or another descriptive term in the warning in item b) above.

c) **Only attach the magnetic drill to ferrous metal.** *The magnetic base will not secure properly to non-ferrous metals, such as non-magnetic grades of stainless steel.*

d) **Clean the surface before attaching the drill stand to the work surface.** *Paint, rust or scale decrease the holding strength of the magnet. Chips, burrs, dirt and other foreign matter on the surface of the magnetic base will also decrease holding power.*

e) **Always secure the magnetic base on a smooth, flat work surface.** *If the workpiece is uneven and not smooth or flat, the magnetic base may release from the workpiece, causing unexpected movement of the tool or workpiece and personal injury.*

f) **Use clamps or other practical ways to secure and support the workpiece to a stable platform.** *It is important to support the workpiece properly to minimise body exposure, binding, or loss of control*.

g) **Always use the safety strap provided or recommended to secure the tool to the workpiece before turning on the drill motor.** *The magnetic base may release from the workpiece, causing unexpected movement of the tool or workpiece and personal injury.*

NOTE 102 It is possible to replace the term "strap" with "chain" or another descriptive term in the warning in item g) above.

h) **Always activate the magnetic base and make sure it is securely attached to the workpiece before turning on the drill motor.** *Failure to secure the magnetic base to the workpiece may cause unexpected movement of the tool or workpiece and personal injury.*

i) **Always ensure the workpiece is in a fixed or stable position.** *Unexpected movement of the workpiece may result in personal injury.*

j) **Make sure you are in a stable position and able to control the tool while releasing the tool from the workpiece.** *A loss of control upon releasing the tool from the workpiece may result in personal injury.*

k) **Keep your hands out of the drilling area while the tool is running.** *Contact with rotating parts or chips may result in personal injury.*

l) **Make sure the bit is rotating before feeding into the workpiece.** *Otherwise the accessory may become jammed in the workpiece causing unexpected movement of the workpiece and personal injury.*

m) **Do not use excessive feed force while drilling.** *Use of excessive feed force may cause the magnetic base to release from the workpiece, causing unexpected movement of the tool or workpiece and personal injury.*

n) **Avoid generating long chips by regularly interrupting downward pressure.** *Sharp metal chips may cause entanglement and personal injuries.*

o) **Never remove chips from the drilling area while the tool is running. To remove chips, move the bit away from the workpiece, switch off the drill motor and wait for the bit to stop moving. Use tools such as a brush or hook to remove chips.** *Contact with rotating parts or chips may result in personal injury.*

p) **When performing drilling that requires the use of cutting fluid, route the cutting fluid away from the operator's work area or use a liquid collection device.** *Such precautionary measures keep the operator's work area dry and reduce the risk of electric shock*.

q) **When the bit is jammed, stop applying downward pressure and turn off the tool.** *Investigate and take corrective actions to eliminate the cause of bit jamming*.

r) **When restarting a drill in the workpiece, check that the bit rotates freely before starting.** *If the bit is bound it may not start, may overload the tool, or may cause the drill stand release from the workpiece.*

s) **Do not deactivate the magnetic base until the tool is turned off and the bit has come to a complete stop.** *Premature deactivation of the magnetic base may cause unexpected movement of the tool or workpiece and personal injury.*

8.14.2 a) *Addition:*

101) For **separable magnetic drill stands**, instructions indicating the appropriate **drill unit(s)** for use, such as by a catalog number, series identification or the equivalent;

102) Instruction for surface preparation of the workpiece and the base of the **magnetic drill stand**;

103) Instructions for securing the **magnetic drill stand** to the workpiece;

104) Instruction for assembling the **drill unit** to the **magnetic drill stand**, if applicable.

8.14.2 b) *Addition:*

101) Information about which drill chucks may be used with the tool and instruction on how to fit them;

102) Information about which drill bits and cutters may be used with the tool;

103) Information on how to use the supplementary means of attachment between the **magnetic drill stand** and the workpiece as required in 21.101.

8.14.2 c) *Addition:*

101) Information about maintenance and replacement of the supplementary means of attachment between the **magnetic drill stand** and the workpiece.

9 Protection against access to live parts

IEC 62841-1:2014, Clause 9 is applicable.

10 Starting

IEC 62841-1:2014, Clause 10 is applicable.

11 Input and current

IEC 62841-1:2014, Clause 11 is applicable.

12 Heating

IEC 62841-1:2014, Clause 12 is applicable, except as follows.

12.1 *Addition:*

*Prior to the test, the **magnetic drill stand** is placed on a steel plate with*

– *a thickness of (12 ± 2) mm; and*

– *a length and width of at least the same size as the base of the **magnetic drill stand**.*

*The test may be conducted with the **drill unit** mechanically separated from, but electrically connected to, the **magnetic drill stand**.*

12.2.1 *Replacement:*

The load conditions for the heating test of 12.2 are as follows.

*For **magnetic drills** that are not equipped with a **separable magnetic drill stand**, the tool is operated with a torque load applied such that **rated input** or **rated current** of the **magnetic drill stand** is drawn continuously for a period of 30 min.*

*For **magnetic drills** that are equipped with a **separable magnetic drill stand**, the tool is operated with a torque load applied such that input or current marked on the **drill unit** is drawn continuously for a period of 30 min.*

13 Resistance to heat and fire

IEC 62841-1:2014, Clause 13 is applicable.

14 Moisture resistance

IEC 62841-1:2014, Clause 14 is applicable, except as follows.

14.3 *Replacement:*

Liquid systems or spillage of liquid shall not subject the user to an increased risk of electrical shock.

If the tool complies with at least IPX4 in accordance with IEC 62841-1:2014, 14.2, this requirement is deemed to be fulfilled.

For tools not complying with at least IPX4 in accordance with IEC 62841-1:2014, 14.2, compliance is checked by the following test:

*The **residual current device**, if any, shall be disabled during the test. Electrical components, covers and other parts which can be removed without the aid of a tool are removed, except those fulfilling the test of IEC 62841-1:2014, 21.22.*

The tool is prepared with approximately 1,0 % NaCl solution in the following modes if applicable:

- *as described in 8.14.2;*
- *the liquid container of the tool is completely filled, and a further quantity, equal to 15 % of the capacity of the container, or 0,25 l, whichever is the greater, is poured in steadily over a period of 60^{+0}_{-10} s, while the tool is resting in its filling position according to 8.14.2 d);*
- *a detachable liquid container is filled completely and mounted and dismounted 10 times on the tool.*

*In each applicable preparation, the tool is operated at **rated voltage** in each position consistent with the instructions in accordance with 8.14.2 b) for 1 min while monitoring the leakage current in accordance with IEC 62841-1:2014, Clause C.3. During the test the leakage current shall not exceed:*

- *2 mA for a **class II tool**;*
- *5 mA for a **class I tool**.*

*Following this test, the tool shall meet the electric strength test of IEC 62841-1:2014, Clause D.2 between **live parts** and **accessible parts** after being allowed to dry for 24 h at ambient temperature.*

15 Resistance to rusting

IEC 62841-1:2014, Clause 15 is applicable.

16 Overload protection of transformers and associated circuits

IEC 62841-1:2014, Clause 16 is applicable.

17 Endurance

IEC 62841-1:2014, Clause 17 is applicable, except as follows.