

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety –  
Part 2-7: Particular requirements for hand-held spray guns**

**Outils électroportatifs à moteur, outils portables et machines pour jardins et pelouses – Sécurité –  
Partie 2-7 : Exigences particulières pour les pistolets de pulvérisation portatifs**

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INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

ICS 25.140.20

ISBN 978-2-8322-8824-5

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

**Part 2-7: Particular requirements for hand-held spray guns**

**FOREWORD**

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IEC 62841-2-7 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
116/740/FDIS	116/762/RVD

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

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

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

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

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 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.

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/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

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- reconfirmed,
- withdrawn, or
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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.

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

## Part 2-7: Particular requirements for hand-held spray guns

### 1 Scope

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

*Addition:*

This document applies to hand-held **spray guns** for **non-flammable materials**.

### 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*

### 3 Terms and definitions

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

*Addition:*

#### 3.101

##### **non-flammable material**

material having a flash-point above 55 °C

#### 3.102

##### **spray gun**

tool incorporating the motor in a hand-held unit with an unpressurized material container intended for the mechanical spraying of liquid, paste or powdery substances

### 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:

### 5.7.3 Replacement:

*For tests that require a value for **rated current** and with **spray guns** where there is no marked **rated current**, the value of the **rated current** is determined by measuring the current of the **spray gun** when operated and loaded as specified in 12.2 and 12.2.1.*

### 5.17 Addition:

*The mass of a **spray gun** includes the heaviest nozzle and the heaviest material container in accordance with 8.14.2 a) 101), but does not include any material to be sprayed.*

## 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:

### 8.14.1 Replacement of the second paragraph:

As the term "power tool" or "tool" is not appropriate for **spray guns**, for these products an appropriate term such as "sprayer" or "paint sprayer" may be used.

#### 8.14.1.1 General power tool safety warnings

*Modification:*

For **spray guns**,

- Items 3) d), 3) g), and 4) f) may be omitted; and
- item 4) a) may be modified as follows:

**Use the correct sprayer for your application.** *The correct sprayer will do the job better and safer at the rate for which it was designed.*

#### 8.14.2 a) Addition:

- 101) Information on recommended nozzles and material containers to be used with the **spray gun**;
- 102) Instruction not to use **spray guns** for spraying flammable materials;
- 103) Warning to be aware of any hazards presented by the material being sprayed and instruction to consult the markings on the container or the information supplied by the manufacturer of the material to be sprayed.



**8.14.2 b) Addition:**

101) Instruction to use appropriate personal protective equipment, such as a respirator.

**8.14.2 c) Addition:**

101) Instruction not to clean **spray guns** with flammable solvents.

**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**

*Replacement:*

The **rated input** or **rated current** shall be at least the measured power input or current under load.

*Compliance is checked by measuring the power input or current of the **spray gun** when operated and loaded as specified in 12.2 and 12.2.1. If the **spray gun** is only marked with **rated input**, the current of the **spray gun** should also be measured and recorded for the test condition of 5.7.3.*

**12 Heating**

<https://www.it-ebooks.info/book/2024/01/iec-62841-2-7-2024>  
IEC 62841-1:2014, Clause 12 is applicable, except as follows:

**12.2 Replacement:**

*For **spray guns** with one or more **rated voltages**: The **spray gun** is operated at each **rated voltage**, under the load conditions specified in 12.2.1.*

*The temperatures are measured at the most unfavourable of the two voltage settings. The temperatures that are measured by means of thermocouples are taken while the **spray gun** is operating.*

*For **spray guns** with a **rated voltage range**: The **spray gun** is operated*

- at the lower limit of the **rated voltage range**; and
- at the upper limit of the **rated voltage range**.

*The temperatures are measured at the most unfavourable of the two voltage settings. The temperature rises are measured at the end of the last "on" period.*

### 12.2.1 Replacement:

The **spray gun** is fitted with the smallest nozzle recommended by the manufacturer in accordance with 8.14.2 a) 101). The **spray gun** is operated through continuous cycles spraying for 1 h or until temperatures stabilise, whichever is achieved first. Each cycle consists of spraying water, paint or hydraulic fluid until the volume of the largest recommended material container in accordance with 8.14.2 a) 101) is empty followed by a maximum 1 min "off" period in order to refill the material container before the test is continued. The combination of controls, if any, is adjusted so as to achieve maximum input during the periods of operation. At the manufacturer's option, the **spray gun** may also be operated continuously until thermal stabilisation.

## 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.

## 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:

### 17.2 Replacement:

The **spray gun** is fitted with the smallest nozzle recommended by the manufacturer in accordance with 8.14.2 a) 101). The **spray gun** is operated for 12 h of operation at a voltage equal to 1,1 times the highest **rated voltage** or 1,1 times the upper limit of the **rated voltage range**, and then for 12 h at a supply voltage equal to 0,9 times the lowest **rated voltage** or 0,9 times the lower limit of the **rated voltage range**. The **spray gun** is operated through continuous cycles spraying. Each cycle consists of spraying water, paint or hydraulic fluid until the volume of the largest recommended container in accordance with 8.14.2 a) 101) is empty followed by a 5 min "off" period. The combination of controls, if any, is adjusted so as to achieve maximum input during the periods of operation.

The **spray gun** may be switched on and off by means of a switch other than that incorporated in the **spray gun**.

During this test, if applicable, replacement of the carbon brushes is allowed, and the **spray gun** is oiled and greased as in **normal use**.

If the temperature rise of any part of the **spray gun** exceeds the temperature rise determined during the test of 12.1, forced cooling or rest periods are applied, the rest periods being excluded from the specified operating time.

*During these tests, overload protection devices shall not operate.*

## 18 Abnormal operation

IEC 62841-1:2014, Clause 18 is applicable, except as follows:

### 18.8.1 Replacement of Table 4:

**Table 4 – Required performance levels**

Type and purpose of SCF	Minimum performance level (PL)
<b>Power switch</b> – prevent unwanted switch-on	a
<b>Power switch</b> – provide desired switch-off	a
Any electronic control to pass the test of 18.3	a
Prevent exceeding thermal limits as in 18.4 and 18.5.3	a
Prevent self-resetting as required in 23.3	a

## 19 Mechanical hazards

IEC 62841-1:2014, Clause 19 is applicable, except as follows:

**19.6** This subclause of IEC 62841-1:2014 is not applicable.

**19.101 Spray guns** that operate at 10 bar or greater shall be guarded at the nozzle to prevent inadvertent contact with the orifice.

The nozzle **guard** shall

- ensure an axial distance between body tissue and discharge point of the nozzle of at least 8 mm when the **spray gun** operates between 10 bar and 50 bar;
- ensure an axial distance between body tissue and discharge point of the nozzle of at least 25 mm when the **spray gun** operates at 50 bar or greater;
- be an integral part of the equipment necessary for operation; and
- have a minimum radial distance.

*Compliance is checked by inspection and by measurement.*

## 20 Mechanical strength

IEC 62841-1:2014, Clause 20 is applicable, except as follows:

**20.1 Addition:**

*A breakage of the container is disregarded.*

**20.5** This subclause of IEC 62841-1:2014 is not applicable.

## 21 Construction

IEC 62841-1:2014, Clause 21 is applicable, except as follows:

### 21.15 *Replacement:*

**Spray guns** shall be so constructed that, in any position of the gun, their electrical insulation cannot be affected by liquids which might leak from containers, hoses, couplings and the like.

*Compliance is checked by inspection.*

**21.30** This subclause of IEC 62841-1:2014 is not applicable.

### 21.35 **Dust collection**

This subclause of IEC 62841-1:2014 is not applicable.

## 22 Internal wiring

IEC 62841-1:2014, Clause 22 is applicable.

## 23 Components

IEC 62841-1:2014, Clause 23 is applicable, except as follows:

### 23.1.10 *Addition:*

For **spray guns**, reed-switches are allowed as **power switches**.

### 23.3 *Replacement of the first paragraph:*

Protection devices or circuits shall be of the non-self-resetting type unless the tool is equipped with a **momentary power switch** with no provision for being locked in the "on" position.

## 24 Supply connection and external flexible cords

IEC 62841-1:2014, Clause 24 is applicable.

## 25 Terminals for external conductors

IEC 62841-1:2014, Clause 25 is applicable.

## 26 Provision for earthing

IEC 62841-1:2014, Clause 26 is applicable.

## 27 Screws and connections

IEC 62841-1:2014, Clause 27 is applicable.