

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

Hand-held motor-operated electric tools – Safety –  
Part 2-21: Particular requirements for drain cleaners

Outils électroportatifs à moteur – Sécurité –  
Partie 2-21: Règles particulières pour les curettes

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CH-1211 Geneva 20  
Switzerland  
Email: [inmail@iec.ch](mailto:inmail@iec.ch)  
Web: [www.iec.ch](http://www.iec.ch)

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Tél.: +41 22 919 02 11  
Fax: +41 22 919 03 00



IEC 60745-2-21

Edition 1.1 2008-08

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**Hand-held motor-operated electric tools – Safety –  
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INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

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ICS 25.140.20; 91.140.70

ISBN 2-8318-9911-7

# INTERNATIONAL ELECTROTECHNICAL COMMISSION

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## HAND-HELD MOTOR-OPERATED ELECTRIC TOOLS – SAFETY –

### Part 2-21: Particular requirements for drain cleaners

#### 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.
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This part of International Standard IEC 60745 has been prepared by subcommittee 61F: Safety of hand-held, motor-operated electric tools, of IEC technical committee 61: Safety of household and similar electrical appliances.

This consolidated version of IEC 60745-2-21 consists of the first edition (2002) [documents 61F/483/FDIS and 61F/504/RVD] and its amendment 1 (2008) [documents 61F/739/FDIS and 61F/759/RVD].

The technical content is therefore identical to the base edition and its amendment and has been prepared for user convenience.

It bears the edition number 1.1.

A vertical line in the margin shows where the base publication has been modified by amendment 1.

The French version of this standard has not been voted upon.

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

This part 2 is to be used in conjunction with the latest edition of IEC 60745-1, *Hand-held motor-operated electric tools – Safety – Part 1: General requirements*, and its amendments. It was established on the basis of the third edition (2001) of that standard.

NOTE 1 When “Part 1” is mentioned in this standard, it refers to IEC 60745-1.

This part 2 supplements or modifies the corresponding clauses of IEC 60745-1, so as to convert that publication into the IEC standard: Safety requirements for drain cleaners.

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

NOTE 2 The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- additional annexes are lettered AA, BB, etc.

NOTE 3 In this standard, the following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in smaller roman type.

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

With amendment 1, this Part 2 is established on the basis of the fourth edition (2006) of IEC 60745-1, *Hand-held motor-operated electric tools – Safety – Part 1: General requirements*.

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Main changes include editorial modifications to match with the fourth edition of IEC 60745-1 and clarifications in Annex K.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

# HAND-HELD MOTOR-OPERATED ELECTRIC TOOLS – SAFETY –

## Part 2-21: Particular requirements for drain cleaners

### 1 Scope

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

*Addition:*

This standard applies to drain cleaners.

### 2 Normative references

This clause of Part 1 is applicable.

### 3 Terms and definitions

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

#### 3.101

##### **drain cleaner**

tool for cleaning out blocked drains

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### 4 General requirements

This clause of Part 1 is applicable.

### 5 General conditions for the tests

This clause of Part 1 is applicable.

### 6 Void

### 7 Classification

This clause of Part 1 is applicable.

### 8 Marking and instructions

This clause of Part 1 is applicable.

## 9 Protection against access to live parts

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

**9.101** The **drain cleaner** cable is not considered a grasping surface.

## 10 Starting

This clause of Part 1 is applicable.

## 11 Input and current

This clause of Part 1 is applicable.

## 12 Heating

This clause of Part 1 is applicable.

## 13 Leakage current

This clause of Part 1 is applicable.

## 14 Moisture resistance

This clause of Part 1 is applicable.

## 15 Electric strength

This clause of Part 1 is applicable.

## 16 Overload protection of transformers and associated circuits

This clause of Part 1 is applicable.

## 17 Endurance

This clause of Part 1 is applicable.

## 18 Abnormal operation

This clause of Part 1 is applicable.

## 19 Mechanical hazards

This clause of Part 1 is applicable.

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**19.4** *Addition:*

Drain cleaners shall be designed so that they can be supported by two hands during normal use.

**20 Mechanical strength**

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

**20.5** This subclause is not applicable.

**21 Construction**

This clause of Part 1 is applicable except as follows:

**21.32** This subclause is not applicable.

**22 Internal wiring**

This clause of Part 1 is applicable.

**23 Components**

This clause of Part 1 is applicable.

**24 Supply connection and external flexible cords**

This clause of Part 1 is applicable.

**25 Terminals for external conductors**

This clause of Part 1 is applicable.

**26 Provision for earthing**

This clause of Part 1 is applicable.

**27 Screws and connections**

This clause of Part 1 is applicable.

**28 Creepage distances, clearances and distances through insulation**

This clause of Part 1 is applicable.

**29 Resistance to heat, fire and tracking**

This clause of Part 1 is applicable.

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### **30 Resistance to rusting**

This clause of Part 1 is applicable.

### **31 Radiation, toxicity, and similar hazards**

This clause of Part 1 is applicable.

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## Annexes

The annexes of Part 1 are applicable, except as follows:

### **Annex K** (normative)

#### **Battery tools and battery packs**

**K.1** *Addition:*

All clauses of this Part 2 apply unless otherwise specified in this annex.

### **Annex L** (normative)

#### **Battery tools and battery packs provided with mains connection or non-isolated sources**

**L.1** *Addition:*

All clauses of this Part 2 apply unless otherwise specified in this annex.

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## **Bibliography**

The bibliography of Part 1 is applicable.

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