

INTERNATIONAL
STANDARD

IEC
60335-2-28

Fourth edition
2002-10

**Household and similar electrical appliances –
Safety –**

**Part 2-28:
Particular requirements for sewing machines**

*Appareils électrodomestiques et analogues –
Sécurité –*

*Partie 2-28:
Règles particulières pour les machines à coudre*



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –****Part 2-28: Particular requirements for sewing machines**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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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- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

This part of International Standard IEC 60335 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

This fourth edition cancels and replaces the third edition published in 1994. It constitutes a technical revision.

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

FDIS	Report on voting
61/2204/FDIS	61/2285/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 part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments. It was established on the basis of the fourth edition (2001) of that standard.

NOTE 1 When "Part 1" is mentioned in this standard, it refers to IEC 60335-1.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Safety requirements for electric sewing machines.

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;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.

NOTE 3 The following print types are used:

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

The committee has decided that the contents of this publication will remain unchanged until 2004. At this date, the publication will be

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

The following differences exist in the countries indicated below.

- Clause 1: Electrical sets are not considered suitable for field installation on non-electrical household sewing machines (USA).
- 6.1: Motor controls shall not be class 0, class 0I or class I construction (Norway).
- 6.1: Appliances for household use shall be class II or class III (Netherlands).
- 11.7: The cycles of operation are different (USA).
- 19.7: The test is not carried out on household sewing machines (USA).
- 25.7: Lighter types of supply cords are allowed (USA).

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules may differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-28: Particular requirements for sewing machines

1 Scope

This clause of Part 1 is replaced by:

This International Standard deals with the safety of electric sewing machines for household and similar use, their **rated voltage** being not more than 250 V for single-phase appliances and 480 V for other appliances.

Overlock machines and **electrical sets** are within the scope of the standard.

Appliances not intended for normal household use, but that nevertheless may be a source of danger to the public, such as sewing machines intended to be used by laymen in shops and in light industry, are within the scope of this standard.

As far as is practicable, this standard deals with the common hazards presented by appliances that are encountered by all persons in and around the home. However, in general, it does not take into account

- the use of appliances by young children or infirm persons without supervision;
- playing with the appliance by young children.

NOTE 101 Attention is drawn to the fact that

- for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements may be necessary;
- in many countries additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour and similar authorities.

NOTE 102 This standard does not apply to

- appliances intended exclusively for industrial purposes;
- appliances intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas).

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60320-2-1, *Appliance couplers for household and similar general purposes – Part 2: Sewing machine couplers*

3 Definitions

This clause of Part 1 is applicable except as follows.

3.1.9 *Replacement:*

normal operation

operation of the appliance under the following conditions

The appliance is operated without thread and fabric, the presser foot being in its lifted position and the spool-winding device disengaged. The stitch length and zigzag stitch width are adjusted so that the highest load is obtained.

NOTE 101 The highest load is normally obtained with the stitch length and zigzag stitch width adjusted to their maximum values.

3.101

electrical set

assembly comprising a motor and its control for mounting on a non-electric sewing machine

NOTE An **electrical set** may incorporate a lamp.

3.102

overlock machine

sewing machine having more than one needle and incorporating a means for trimming the material

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable except as follows.

5.101 *Electrical sets are mounted on the sewing machine specified in the instructions that gives the most unfavourable results.*

5.102 *Sewing machines used on a table are tested as **portable appliances**.*

6 Classification

This clause of Part 1 is applicable.

7 Marking and instructions

This clause of Part 1 is applicable except as follows.

7.1 Addition:

Appliances shall be marked on or near the lampholder with the maximum power input of replaceable lamps as follows:

lamp max....W

The word "lamp" may be replaced by symbol 5012 of IEC 60417-1.

The rated voltage of a lamp shall be marked if it is lower than the **rated voltage** of the appliance.

7.10 Addition:

The requirement does not apply to switches controlling lamps.

7.11 Addition:

The requirement does not apply to motor controls.

7.12 Addition:

The instructions shall state the maximum power input of any lamp and its rated voltage if it is lower than the **rated voltage** of the appliance.

The instructions shall state the substance of the following:

- switch off or unplug the appliance when leaving it unattended;
- unplug the appliance before carrying out maintenance or replacing lamps.

7.12.1 Addition:

The instructions for **electrical sets** shall indicate the sewing machines for which they are intended and shall state how they are to be installed.

7.101 Electrical sets shall be marked with

- **rated voltage** in volts;
- **rated current** in amperes;
- name, trade mark or identification mark of the manufacturer or responsible vendor;
- model or type reference.

Compliance is checked by inspection.

8 Protection against access to live parts

This clause of Part 1 is applicable.

9 Starting of motor-operated appliances

This clause of Part 1 is not applicable.

10 Power input and current

This clause of Part 1 is applicable.

11 Heating

This clause of Part 1 is applicable except as follows.

11.7 Replacement:

The appliance is operated until steady conditions are established by actuating the motor control in cycles. Each cycle comprises

- 2,5 s operation from start to full speed;

- 5,0 s operation at full speed;
- 7,5 s at rest.

11.8 Addition:

NOTE 101 The actuating member of a motor control is considered to be a handle that is held for short periods only.

12 Void

13 Leakage current and electric strength at operating temperature

This clause of Part 1 is applicable.

14 Transient overvoltages

This clause of Part 1 is applicable.

15 Moisture resistance

This clause of Part 1 is applicable.

16 Leakage current and electric strength

This clause of Part 1 is applicable.

17 Overload protection of transformers and associated circuits

This clause of Part 1 is applicable.

18 Endurance

This clause of Part 1 is not applicable.

19 Abnormal operation

This clause of Part 1 is applicable except as follows.

19.7 Modification:

Stalled conditions are obtained by locking the rotor, the appliance being operated for 15 s.

19.9 Not applicable

20 Stability and mechanical hazards

This clause of Part 1 is applicable except as follows.

20.2 Addition:

Spokes of wheels, cutting blades of **overlock machines** and the point where a transmission belt first contacts the hand-wheel shall be adequately guarded.

21 Mechanical strength

This clause of Part 1 is applicable.

22 Construction

This clause of Part 1 is applicable except as follows.

22.14 Addition:

NOTE 101 The risk of injury while feeding material under the presser foot during straight stitch and zigzag sewing has to be taken into account. An upward bend of the toe of the pressure foot by at least 6 mm or a wire guard is considered satisfactory.

NOTE 102 This requirement does not apply to presser feet and attachments for particular purposes such as sewing buttonholes. It also does not apply to moving parts, such as needles, needle bars, spool winding devices and take-up levers, which are accessible for the operation and maintenance of the sewing machine.

22.101 Lamps having a rated voltage lower than the **rated voltage** of the appliance shall be supplied through an isolating transformer.

Compliance is checked by inspection.

23 Internal wiring

This clause of Part 1 is applicable.

24 Components

This clause of Part 1 is applicable except as follows

24.1.3 Addition:

NOTE 101 Motor controls are not considered to be switches.

24.1.5 Addition:

The relevant standard for appliance couplers used for the connection of motor controls is IEC 60320-2-1.

25 Supply connection and external flexible cords

This clause of Part 1 is applicable except as follows.

25.5 Addition:

Type Z attachment is allowed for motor controls and appliance connectors.

25.7 *Addition:*

Light polyvinyl chloride sheathed cord (code designation 60227 IEC 52) may be used regardless of the mass of the appliance.

26 Terminals for external conductors

This clause of Part 1 is applicable.

27 Provision for earthing

This clause of Part 1 is applicable.

28 Screws and connections

This clause of Part 1 is applicable.

29 Clearances, creepage distances and solid insulation

This clause of Part 1 is applicable.

30 Resistance to heat and fire

This clause of Part 1 is applicable except as follows.

30.2.3 Not applicable.

31 Resistance to rusting

This clause of Part 1 is applicable.

32 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable.

Annexes

The annexes of Part 1 are applicable.

Bibliography

The bibliography of Part 1 is applicable.



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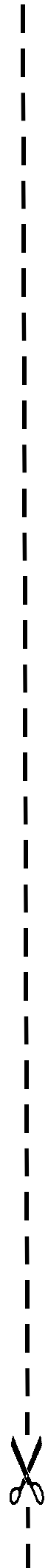
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