INTERNATIONAL STANDARD

IEC 60335-2-88

Second edition
2002-10

Household and similar electrical appliances – Safety –

Part 2-88: Particular requirements for humidifiers intended for use with heating, ventilation, or air-conditioning systems

Appareils électrodomestiques et analogues – Sécurité –

Partie 2-88: Règles particulières pour les humidificateurs destinés à être utilisés avec des appareils de chauffage, de ventilation ou de conditionnement d'air

© IEC 2002 — Copyright - all rights reserved

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch

Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE R

For price, see current catalogue

CONTENTS

FOREWORD 4
INTRODUCTION 6

1 Scope 7
2 Normative references 7
3 Definitions 8
4 General requirement 8
5 General conditions for the tests 8
6 Classification 8
7 Marking and instructions 8
8 Protection against access to live parts 9
9 Starting of motor-operated appliances 9
10 Power input and current 10
11 Heating 10
12 Void 10
13 Leakage current and electric strength at operating temperature 10
14 Transient overvoltages 10
15 Moisture resistance 10
16 Leakage current and electric strength 11
17 Overload protection of transformers and associated circuits 11
18 Endurance 11
19 Abnormal operation 11
20 Stability and mechanical hazards 11
21 Mechanical strength 11
22 Construction 12
23 Internal wiring 13
24 Components 13
25 Supply connection and external flexible cords 13
26 Terminals for external conductors 13
27 Provision for earthing 14
28 Screws and connections 14
29 Clearances, creepage distances and solid insulation 14
30 Resistance to heat and fire 14
31 Resistance to rusting 14
32 Radiation, toxicity and similar hazards 14

Annexes 15
Annex AA (normative) Gaskets 15
Annex BB (normative) Test for liquid-containers 17

Bibliography 18

Table AA.1 – Physical properties of gasket materials 15
Table AA.2 – Accelerated aging conditions 16
Table BB.1 – Oven conditioning temperatures.....17

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-88: Particular requirements for humidifiers intended for use with heating, ventilation, or air-conditioning systems

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.
2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
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 subcommittee 61D: Appliances for air-conditioning for household and similar purposes, of IEC technical committee 61: Safety of household and similar electrical appliances.

This second edition cancels and replaces the first edition published in 1997. It constitutes a technical revision.

The text of this part of IEC 60335 is based on the following documents:

FDIS	Report on voting
61D/117/FDIS	61D/122/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 humidifiers intended for use with heating, ventilation, or air-conditioning systems.

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 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.

– 6.1: class 01 appliances are allowed (Japan).

– 6.1: class 0 and 01 appliances are allowed (South Africa, Poland).

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 – SAFTEY –

Part 2-88: Particular requirements for humidifiers intended for use with heating, ventilation, or air-conditioning systems

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric **humidifiers** intended for use with heating, ventilation, or air-conditioning systems in household, commercial, and light industrial applications (and may include large stand-alone commercial equipment) which operate according to the evaporative or atomization system, water-injection, steam and the like, their maximum **rated voltage** being not more than 250 V for single-phase appliances and 600 V for all other appliances.

NOTE 101 Air-conditioning equipment to be used in conjunction with the **humidifiers** covered by this standard are covered in IEC 60335-2-40.

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 102 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 national health authorities, national authorities responsible for the protection of labour and similar authorities.

NOTE 103 This standard does not apply to

– **humidifiers** without room heating, ventilation or air-conditioning equipment intended exclusively for household use (IEC 60335-2-98);

– appliances designed exclusively for industrial processing;

– 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);

– **humidifiers** intended for medical purposes (see IEC 60601).

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60068-2-52:1996, *Environmental testing – Part 2: Tests – Test Kb: Salt mist, cyclic (sodium chloride solution)*