

Australian/New Zealand Standard™

**Household and similar electrical
appliances—Safety**

**Part 2.11: Particular requirements for
tumble dryers
(IEC 60335-2-11 Ed 7.2, MOD)**



AS/NZS 60335.2.11:2017

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-002, Safety of Household and Similar Electrical Appliances and Small Power Transformers. It was approved on behalf of the Council of Standards Australia on 2 December 2016 and by the New Zealand Standards Approval Board on 9 December 2016.

This Standard was published on 13 January 2017.

The following are represented on Committee EL-002:

Australian Industry Group
National Retailers Association (Australia)
Business New Zealand
Consumer Electronic Suppliers Association, Australia
Consumers' Federation of Australia
Electrical Regulatory Authorities, Australia
Electrical consultants
Engineers Australia
JAS-ANZ
Testing Interests New Zealand
WorkSafe, New Zealand
New Zealand Electric Fence Energizer Manufacturers' Standards Group

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.saiglobal.com or Standards New Zealand web site at www.standards.govt.nz and looking up the relevant Standard in the on-line catalogue.

For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of Standards Australia or the New Zealand Standards Executive at the address shown on the back cover.

Australian/New Zealand Standard™

Household and similar electrical appliances—Safety

Part 2.11: Particular requirements for tumble dryers (IEC 60335-2-11 Ed 7.2, MOD)

Originated in Australia as AS 3185—1972.
Originated in New Zealand as NZS 6311:1993.
Jointly revised and redesignated AS/NZS 3350.2.11:1995.
Previous edition AS/NZS 3350.2.11:2001.
Jointly revised and designated AS/NZS 60335.2.11:2002.
Jointly revised and designated AS/NZS 60335.2.11:2009.
Jointly revised and designated AS/NZS 60335.2.11:2017.

COPYRIGHT

© Standards Australia Limited/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968 (Australia) or the Copyright Act 1994 (New Zealand).

Jointly published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001 and by Standards New Zealand, PO Box 1473, Wellington 6011.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

AS/NZS 60335.2.11:2017**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –****Part 2.11: Particular requirements for tumble dryers****Foreword**

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-002- Safety of Household and Similar Electrical Appliances and Small Power Transformers to supersede AS/NZS 60335.2.11:2009 two years from the date of publication.

The objective of this Standard is to provide manufacturers, designers, regulatory authorities, testing laboratories and similar organizations with safety requirements designed to give the user protection against hazards that might occur during normal operation and abnormal operation of the appliance and which may be used as the basis for approval for sale or for connection to the electricity supply mains in Australia and New Zealand

The text of IEC 60335-2-11 Ed 7.2, prepared by IEC Technical Committee 61, was submitted to the Standards Australia/Standards New Zealand Combined Procedure (dual public comment and committee vote) for adoption of the IEC standard as a Standards Australia/Standards New Zealand joint standard AS/NZS 60335.2.11:2017.

The principal changes in this edition as compared with the 2009 edition of AS/NZS 60335.2.11 are as follows (minor changes are not listed):

- temperature-rise limits for accessible surfaces have been revised (7.6, 7.12, 7.14, 7.101, 11.3, 11.8);
- warning against using external means for remote control has been included (7.12);
- exclusion of door opening requirements for washing machines having a drying function has been delete (20.102);
- stability requirements for tumble dryers placed on washing machines has been enhanced (22.103);
- requirements for heat pump type tumble dryers using flammable refrigerants have been enhanced (Annex BB subclauses 3.201, 7.1, 7.12, 7.14, 7.15, 22 203).

This Standard is an adoption with national modifications of the seventh edition including its Amendment 1 (2012) and Amendment 2 (2015) of IEC 60335-2-11, *Household and similar electrical appliances – Safety – Part 2-11: Particular requirements for tumble dryers*. It has been varied as indicated to take account of Australian and New Zealand conditions.

This part 2 has to be used in conjunction with the latest edition of AS/NZS 60335.1 Household and similar electrical appliances – Safety – Part 1: General requirements and its Amendments. It was established on the basis of AS/NZS 60335.1:2011.

This part 2 supplements or modifies the corresponding clauses of AS/NZS 60335.1 so as to convert it into the Australian/New Zealand Standard: Safety requirements for tumble dryers.

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 of Part 1 is to be adapted accordingly.

NOTE 1 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.;

subclauses, notes and annexes that are additional to those in the IEC standard are prefixed with the letters AZ.

NOTE 2 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.

p NOTE 3 In this document, p is used in the margin to indicate instructions for preparing a consolidated version.

The essential safety requirements in AS/NZS 3820¹ that could be applicable to requirements for tumble dryers are covered by this standard.

The national variations to IEC 60335-2-11 Ed 7.2 form the Australian and New Zealand national variations for purposes of the IECEE scheme for recognition of results of testing to standards for safety of electrical equipment (the CB scheme).

¹ AS/NZS 3820 *Essential safety requirements for electrical equipment*

The text of the International Standard IEC 60335-2-11 Ed 7.2 was approved as a joint Australia/New Zealand Standard with the agreed national variations as given below.

AUSTRALIAN NATIONAL VARIATIONS

The following national variations to this part 2 are additional to those listed in the national variations in AS/NZS 60335.1:2011.

7 Marking and instructions

- p 7.1 After the first paragraph *insert* the following variation:

If applicable, the appliance shall be marked with the substance of the following warning.

WARNING: Regularly clean the lint trap

The appliance shall be marked with symbol ISO 7010 W021

- p 7.6 *Insert* the following variation:

7.6 *Addition:*



Symbol ISO 7010 W021

Warning; Risk of fire / Flammable materials

- p 7.12 After the second paragraph, *insert* the following variation:

The meaning of symbol ISO 7010 W021 shall be explained

In the existing third paragraph after the dash items, *insert* the following variation:

- Oil-affected items can ignite spontaneously, especially when exposed to heat sources such as in a tumble dryer. The items become warm, causing an oxidation reaction in the oil. Oxidation creates heat. If the heat cannot escape, the items can become hot enough to catch fire. Piling, stacking or storing oil-affected items can prevent heat from escaping and so create a fire hazard.
- If it is unavoidable that fabrics that contain vegetable or cooking oil or have been contaminated by hair care products be placed in a tumble dryer they should first be washed in hot water with extra detergent - this will reduce, but not eliminate, the hazard.

- p 7.14 After the last paragraph *insert* the following variation:

The marking relating to the cleaning of the lint trap shall be in letters not less than 8 mm high and shall be upright, irrespective of the **tumble dryer** mounting position.

The base of the triangle of symbol ISO 7010 W021 shall be not less than 50 mm.

- p 7.15 After the first paragraph *insert* the following variation:

The marking relating to the cleaning of the lint trap shall be visible when the door is open.

Symbol ISO 7010 W021 shall be readily visible when the appliance is installed as in normal use

15 Moisture resistance

- p 15.2 *Replace* the penultimate paragraph of the test specification by the following:

For all appliances, 0,5 l of water containing approximately 1 % NaCl and 0,6 % of rinsing agent, as specified in Annex AA, is rapidly poured over the top of the appliance so that the spillage solution flows over the surfaces of the appliance that incorporate Controls, the

controls being placed in the on position. The controls are then operated through their working range, this operation being repeated after a period of 5 min.

Annex BB

- p **3.201** *Replace* the term definition with the following variation:
refrigerant with a flammability classification of group 2L, 2 or 3 in accordance with ISO 817.

NEW ZEALAND NATIONAL VARIATIONS

The following national variations to this part 2 are additional to those listed in the national variations in AS/NZS 60335.1:2011.

7 Marking and instructions

- p **7.1** After the first paragraph *insert* the following variation:
If applicable, the appliance shall be marked with the substance of the following warning.

WARNING: Regularly clean the lint trap

The appliance shall be marked with symbol ISO 7010 W021

- p **7.6** *Insert* the following variation:

7.6 *Addition:*



Symbol ISO 7010 W021

Warning; Risk of fire / Flammable materials

- p **7.12** After the second paragraph, *insert* the following variation:

The meaning of symbol ISO 7010 W021 shall be explained

In the existing third paragraph after the dash items, *insert* the following variation:

- Oil-affected items can ignite spontaneously, especially when exposed to heat sources such as in a tumble dryer. The items become warm, causing an oxidation reaction in the oil. Oxidation creates heat. If the heat cannot escape, the items can become hot enough to catch fire. Piling, stacking or storing oil-affected items can prevent heat from escaping and so create a fire hazard.
- If it is unavoidable that fabrics that contain vegetable or cooking oil or have been contaminated by hair care products be placed in a tumble dryer they should first be washed in hot water with extra detergent - this will reduce, but not eliminate, the hazard.

- p **7.14** After the last paragraph *insert* the following variation:

The marking relating to the cleaning of the lint trap shall be in letters not less than 8 mm high and shall be upright, irrespective of the **tumble dryer** mounting position.

The base of the triangle of symbol ISO 7010 W021 shall be not less than 50 mm.

- p **7.15** After the first paragraph *insert* the following variation:

The marking relating to the cleaning of the lint trap shall be visible when the door is open.

Symbol ISO 7010 W021 shall be readily visible when the appliance is installed as in normal use

15 Moisture resistance

- p **15.2** *Replace* the penultimate paragraph of the test specification by the following:

For all appliances, 0,5 l of water containing approximately 1 % NaCl and 0,6 % of rinsing agent, as specified in Annex AA, is rapidly poured over the top of the appliance so that the spillage solution flows over the surfaces of the appliance that incorporate Controls, the controls being placed in the on position. The controls are then operated through their working range, this operation being repeated after a period of 5 min.

Annex BB

- p **3.201** *Replace* the term definition with the following variation:

refrigerant with a flammability classification of group 2L, 2 or 3 in accordance with ISO 817.

**Annex ANZ
(normative)**

**Normative references to international publications with their corresponding joint
Australia/New Zealand publications**

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by national variations the relevant joint Australia/New Zealand publications applies if the national variations are needed to ensure the safety of the appliance for Australia/New Zealand conditions. These international publications are indicated by (mod). If an international publication is not so indicated, then either it or the listed Australia/New Zealand publication may be used.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>AS/NZS</u>	<u>Year</u>
IEC 60079-20-1,		<i>Explosive atmospheres – Part 20-1: Material characteristics for gas and vapour classification – Test methods and data</i>	60079.20.1	
ISO 817		<i>Refrigerants – Designation and safety classification</i>		

NOTES

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references	9
3 Terms and definitions	9
4 General requirement.....	10
5 General conditions for the tests	10
6 Classification.....	10
7 Marking and instructions.....	10
8 Protection against access to live parts.....	11
9 Starting of motor-operated appliances	11
10 Power input and current	12
11 Heating	12
12 Void.....	13
13 Leakage current and electric strength at operating temperature.....	13
14 Transient overvoltages	13
15 Moisture resistance	14
16 Leakage current and electric strength.....	14
17 Overload protection of transformers and associated circuits	14
18 Endurance.....	14
19 Abnormal operation	14
20 Stability and mechanical hazards	16
21 Mechanical strength	17
22 Construction	17
23 Internal wiring.....	18
24 Components	18
25 Supply connection and external flexible cords	18
26 Terminals for external conductors.....	18
27 Provision for earthing	18
28 Screws and connections.....	19
29 Clearances, creepage distances and solid insulation	19
30 Resistance to heat and fire.....	19
31 Resistance to rusting.....	19
32 Radiation, toxicity and similar hazards.....	19
Annexes	21
Annex R (normative) Software evaluation	21
Annex AA (normative) Rinsing agent.....	21
Annex BB (normative) Tumble dryers that use a refrigerating system incorporating sealed motor-compressors for carrying out the drying process.....	22
Annex CC (normative) Equipment protection by type of protection "n".....	30

Bibliography..... 31

Figure 101 – Probe for measuring surface temperatures 20

Table 101 – Maximum temperature rises for accessible external surfaces under
normal operating conditions with the door closed 13

Table 201 – Maximum temperatures for motor-compressors 24

Table 202 – Refrigerant flammability parameters 28

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –****Part 2-11: Particular requirements for tumble dryers**

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.
- 2) The formal decisions or agreements of 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 IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

DISCLAIMER

This Consolidated version is not an official IEC Standard and has been prepared for user convenience. Only the current versions of the standard and its amendment(s) are to be considered the official documents.

This Consolidated version of IEC 60335-2-11 bears the edition number 7.2. It consists of the seventh edition (2008-07) [documents 61/3646/FDIS and 61/3686/RVD], its amendment 1 (2012-10) [documents 61/4434/FDIS and 61/4493/RVD] and its amendment 2 (2015-11) [documents 61/5002/FDIS and 61/5056/RVD]. The technical content is identical to the base edition and its amendments.

This Final version does not show where the technical content is modified by amendments 1 and 2. A separate Redline version with all changes highlighted is available in this publication.

International Standard IEC 60335-2-11 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

The principal changes in this edition as compared with the sixth edition of IEC 60335-2-11 are as follows (minor changes are not listed):

- aligns the text with IEC 60335-1, Ed 4, and its Amendments 1 and 2;
- some notes have been converted to normative text (7.101, 11.8, 20.102, 20.103 and Annex AA).

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 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 tumble dryers.

NOTE 2 The following annexes contain provisions suitably modified from other IEC standards:

Annex AA	Rinsing agent	IEC 60436
Annex BB	Tumble dryers that use a refrigerating system incorporating sealed motor-compressors for carrying out the drying process	IEC 60068-2-6 and IEC 60079-15
Annex CC	Equipment protection by type of protection "n"	IEC 60079-15

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 3 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 4 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.

NOTE 5 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 12 months or later than 36 months from the date of publication.

The following differences exist in the countries indicated below.

- 3.1.9: The textile material has different dimensions (USA).
- 6.2: Tumble dryers are not required to be IPX4 (USA).
- 7.1: An instruction concerning cleaning the lint trap is to be marked on the dryer in letters not less than 8 mm high and is to be conspicuous when the dryer door is open (Australia, New Zealand).

- 7.12: Actual articles of clothing can be specified instead and warnings are required to be marked on the appliance regarding the use of chemicals for cleaning (USA).
- 11.2: The test condition is different (USA).
- 11.7: This test is continued until steady conditions are established and different criteria are used to determine when steady conditions are reached (USA).
- 19.4: The test is different (USA).
- 19.9: A running overload test is carried out on automatically controlled tumble dryers (USA).
- 20.101: The requirement is applicable to door openings with a dimension exceeding 200 mm (Norway).
- 20.102: When considering accessibility to rotating drums, the maximum drum volume is 60 dm³ and the maximum door opening is 200 mm (USA).
- 20.103: This test is not carried out (USA).
- 22.104: The test is different (USA).
- 27.1: Earthing terminals and contacts are allowed to be electrically connected to the neutral conductor of a tumble dryer (USA)

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the stability 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.

NOTE 6 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 the amendment 1 be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

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 and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

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.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

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.

NOTE 2 Horizontal and generic standards covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards. For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 standards.

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 which 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 2-11: Particular requirements for tumble dryers

1 Scope

This clause of Part 1 is replaced by the following.

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

NOTE 101 This standard applies to the drying function of washing machines having a drying cycle.

This standard also deals with the safety of **tumble dryers** that use a refrigerating system, incorporating sealed motor-compressors, for drying textile material. These appliances may use **flammable refrigerants**. Additional requirements for these appliances are given in Annex BB.

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

NOTE 102 Examples of such appliances are **tumble dryers** for communal use in blocks of flats or in launderettes.

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

- persons (including children) whose
 - physical, sensory or mental capabilities; or
 - lack of experience and knowledgeprevents them from using the appliance safely without supervision or instruction;
- children playing with the appliance.

NOTE 103 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, the national water supply authorities, the national authorities responsible for transportation and the national authorities for buildings.

NOTE 104 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).