

Australian/New Zealand Standard™

**Safety of power transformers, power  
supply units and similar devices**

**Part 2.23: Particular requirements for  
transformers for construction sites  
(IEC 61558-2-23:2000, MOD)**



Standards Australia



STANDARDS  
NEW ZEALAND  
Pūrongo Aotearoa

### **AS/NZS 61558.2.23:2001**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL/2 - Safety of household and similar electrical appliances and small power transformers. It was approved on behalf of the Council of Standards Australia on 2 October 2001 and on behalf of the Council of Standards New Zealand on 12 October 2001. It was published on 12 November 2001.

---

The following interests are represented on Committee EL/2:

Association of Certification Bodies  
Australian Chamber of Commerce and Industry  
Australian Electrical and Electronic Manufacturers Association  
Canterbury Manufacturers Association New Zealand  
Consumer Electronic Suppliers Association, Australia  
Electrical regulatory authorities, Australia  
Electrical test laboratories  
Electrical consultants  
Electricity Supply Association of Australia  
Institution of Engineers Australia  
Metal Trades Industries Association of Australia  
Ministry of Consumer Affairs, New Zealand

---

### **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 Standards may also be withdrawn.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 Australia web site at [www.standards.com.au](http://www.standards.com.au) or Standards New Zealand web site at [www.standards.co.nz](http://www.standards.co.nz) and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. 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 either Standards Australia International or Standards New Zealand at the address shown on the back cover.

---

AS/NZS 61558.2.23:2001  
(IEC 61558-2-23:2000, MOD)

## Australian/New Zealand Standard™

---

Safety of power transformers, power  
supply units and similar devices -

Part 2.23: Particular requirements for  
transformers for construction sites  
(IEC 61558-2-23:2000, MOD)

---

First edition AS/NZS 61558.2.23:2001
--------------------------------------

### **COPYRIGHT**

© Standards Australia/ 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

Published jointly by Standards Australia International Ltd  
GPO Box 5420, Sydney, NSW 2001 Australia, and  
Standards New Zealand  
Private Bag 2439, Wellington 6020, New Zealand

## CONTENTS

	Page
PREFACE.....	5
Clause	
1 Scope.....	7
2 Normative references .....	8
3 Definitions .....	8
4 General requirements .....	8
5 General notes on tests .....	8
6 Ratings.....	9
7 Classification.....	10
8 Marking and other information .....	10
9 Protection against accessibility to hazardous live parts.....	12
10 Change of input voltage setting .....	12
11 Output voltage and output current under load .....	13
12 No-load output voltage .....	13
13 Short-circuit voltage .....	14
14 Heating.....	15
15 Short-circuit and overload protection .....	15
16 Mechanical strength .....	15
17 Protection against harmful ingress of dust, solid objects and moisture.....	16
18 Insulation resistance and electric strength .....	16
19 Construction .....	16
20 Components .....	19
21 Internal wiring.....	19
22 Supply connection and other external flexible cables or cords .....	19
23 Terminals for external conductors.....	19
24 Provision for protective earthing .....	19
25 Screws and connections.....	19
26 Creepage distances, clearances and distances through insulation.....	19
27 Resistance to heat, abnormal heat, fire and tracking .....	19
28 Resistance to rusting.....	19

Annexes .....	21
Annex C Material group II .....	21
Annex D Material group I .....	21
Annex L Routine tests (production tests).....	21
Annex ZZ (informative) Variations to IEC 61558-2-23:2000 for application in Australia and New Zealand.....	22
Figure 101 –Impact test for horizontal surface .....	20
Figure 102 –Impact test for vertical surface .....	20
Table 101 – Output voltages ratio for safety isolating transformers .....	14
Table 102 – Output voltages ratio for isolating transformers.....	14



## PREFACE

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

The objective of this Standard is to provide manufacturers, designers, regulatory authorities, testing laboratories and similar organizations with safety requirements for the design, manufacture and testing of transformers for construction sites which can form the basis for approval by regulatory authorities.

This Standard forms the first edition of AS/NZS 61558.2.23 *Safety of power transformers, power supply units and similar devices - Part 2.23: Particular requirements for transformers for construction sites*.

This Standard is an adoption with national modifications and contains the full text of the first edition of IEC 61558-2-23:2000, *Safety of power transformers, power supply units and similar devices - Part 2-23: Particular requirements for transformers for construction sites* and has been varied as indicated to take account of Australian and New Zealand conditions. It is to be used in conjunction with the latest edition of AS/NZS 61558.1 and its amendments. It was established on the basis of the first edition (2000) of that standard.

This part 2 supplements or modifies the corresponding clauses of AS/NZS 61558.1 so as to convert it into the Australian/New Zealand Standard: *Safety requirements for transformers for construction sites*.

Where a particular subclause of part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. Where this Standard states "addition", "modification" or "replacement", the relevant text in part 1 is to be adapted accordingly.

NOTE 1 Subclauses, notes, tables and figures which are additional to those in part 1 are numbered starting from 101. Annexes, which are additional to those in part 1 are lettered AA, BB, etc.

Annex ZZ is for information only.

NOTE 2 In this Standard the following print types are used:

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

Words **in bold** in the text are defined in clause 3.

The numbering of clauses, subclauses, notes, tables, figures and annexes follows that of IEC 61558-2-23:2000. To allow for the introduction of additional material by the IEC, the numbers 101 to 200 have been reserved. To allow for additional material to be introduced by Australia and New Zealand, the numbers 201 to 300 are used to number further clauses, subclauses, notes, tables and figures in part 1. The numbers 301 to 400 are used to number further clauses, subclauses, notes, tables and figures in this part 2. Additional annexes are lettered ZA, ZB and so on.

This scheme has been introduced to reduce the likelihood of the IEC and Australia and New Zealand using the same identifier for different purposes.

Clause 2 has been reformatted to indicate the Australia/New Zealand standard that is equivalent to the IEC standard or ISO standard to which normative reference is made.

As this Standard is reproduced from an International Standard, the following applies:

- (a) Its number does not appear on each page of text and its identity is shown on the cover and title page only.
- (b) In the source text "this International Standard" should read "this Australian/New Zealand Standard".
- (c) A full point substitutes for a comma when referring to a decimal marker.

Variations to IEC 61558-2-23:2000 are indicated at the appropriate places throughout this standard. Strikethrough (~~example~~) identifies IEC tables, figures and passages of text which, for the purposes of this Australian/New Zealand standard are deleted. Where Australian/New Zealand tables, figures or passages of text are added, each is set in its proper place and identified by shading (example). Added figures are not themselves shaded, but are identified by a shaded border.

Variations made to IEC 61558-2-23:2000 form the Australian variations for the purposes of the IECEE scheme for recognition of testing to standards for safety of electrical equipment (the CB scheme). These variations have been incorporated in the body of the standard. They are listed in Annex ZZ for easy reference.

## AUSTRALIA/NEW ZEALAND STANDARD

### SAFETY OF POWER TRANSFORMERS, POWER SUPPLY UNITS AND SIMILAR DEVICES –

#### Part 2.23: Particular requirements for transformers for construction sites (IEC 61558-2-23:2000, MOD)

## 1 Scope

### *Replacement:*

This International Standard deals with all aspects of safety such as electrical, thermal and mechanical.

This part of ~~IEC 61558~~ AS/NZS 61558 applies to **stationary** or **portable** single-phase or poly-phase air-cooled (natural or forced) **independent** or **associated**, **isolating** or **safety isolating transformers** intended for use on construction sites, having a **rated supply voltage** not exceeding 1 000 V a.c., and a **rated frequency** not exceeding 500 Hz.

The **rated output** should not exceed:

- 25 kVA for single-phase transformers;
- 40 kVA for poly-phase transformers.

**Isolating transformers** for construction sites should have a **no-load output voltage** and a **rated output voltage** exceeding 50 V a.c. and not exceeding 250 V a.c.

**Safety isolating transformers** for construction sites should have a **no-load output voltage** and a **rated output voltage** not exceeding 50 V a.c.

NOTE This standard is applicable to transformers for the supply of electricity in locations as specified in IEC 60364-7-704. The latter also specifies the protection by using an earthed midpoint or starpoint of the output winding.

Transformers for construction sites are to be used when required by the installation rules or by the appliance specification for protection purposes.

When the transformers are incorporated into **low-voltage switchgear and controlgear assemblies for construction sites** as specified in IEC 60439-4, the additional requirements of IEC 60439-4 will apply to the assembly.

This standard is applicable to **dry-type transformers**. The windings may be encapsulated or non-encapsulated.

NOTE 1 For transformers filled with liquid dielectric or pulverized material, such as sand, additional requirements are under consideration.

NOTE 2 Attention is drawn to the fact that

- for transformers intended to be used in tropical countries, special requirements may be necessary;
- for the purposes of this standard, Australia and New Zealand are not considered to be tropical;
- in locations where special environmental conditions prevail, particular requirements may be necessary.

This standard also applies to transformers incorporating electronic circuits. This standard does not apply to external circuits and their components intended to be connected to the input and output terminals or socket-outlets of the transformer.