Australian Standard®

Power transformers

Part 2: Temperature rise

[Based on and including the full text of IEC 76-2:1993]

This Australian Standard was prepared by Committee EL/8, Power Transformers. It was approved on behalf of the Council of Standards Australia on 14 July 1997 and published on 5 September 1997.

The following interests are represented on Committee EL/8:

Australasian Railway Association

Australian Chamber of Commerce and Industry

Australian Electrical and Electronic Manufacturers Association

Australian Institute of Petroleum

Electricity Supply Association of Australia

Electricity Supply Engineers Association of New South Wales

Institution of Engineers, Australia

Testing interests

University of South Australia

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PREFACE

This Standard was prepared by the Standards Australia Committee EL/8, Power Transformers to supersede AS 2374.2—1982, *Power transformers*, Part 2: *Temperature rise.*

It is based on but not equivalent to, and has been reproduced from, IEC 76-2:1993, *Power transformers*, Part 2: *Temperature rise*, with the exception that Appendices ZZ and ZA have been added.

Appendix ZZ lists the Australian variations to IEC 76-2. The changes are indicated with marginal bars against the relevant clause, note, table, figure or part thereof. Note that reference to Appendix ZZ is especially critical in cases where additional text or clauses have been introduced.

This Standard is Part 2 of a series, comprising:

AS		
2374	Power transformers	
2374.1	Part 1:	General
2374.2	Part 2:	Temperature rise
2374.3.0	Part 3.0:	Insulation levels and dielectric tests—General requirements
2374.3.1	Part 3.1:	Insulation levels and dielectric tests—External clearances in air
2374.5	Part 5:	Ability to withstand short-circuit
2374.6	Part 6:	Determination of transformer and reactor sound levels

Significant differences between this Standard and the previous edition include the following:

(a) This Standard requires tests to be carried out on the maximum current tap. The previous edition required tests to be carried out on the maximum loss tap. It is noted that in some cases, including autotransformers, the two are not the same.

(b) For air cooled transformers, this Standard uses the hottest monthly average temperature. The previous edition used the maximum daily average temperature.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

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 only on the cover and title pages.

(b) In the source text, ‘this International Standard’ should read ‘this Australian Standard’.

(c) A full point substitutes for a comma when referring to a decimal marker.

References to international Standards should be replaced by references to the following Australian Standards:

Reference to International Standards		*Australian Standard*	
IEC		AS	
76	Power transformers	2374	Power transformers
76-1	Part 1: General	2374.1	General
85	Thermal evaluation and classification of electrical insulation	2768	Electrical insulating materials—Evaluation and classification based on thermal endurance
279	Measurement of the winding resistance of an a.c. machine during operation at alternating voltage	—	

IEC		AS	
354	Loading guide for oil-immersed power transformers	1078	Guide to loading of oil-immersed transformers
606	Application guide for power transformers	2421	Guide to the selection and use of power transformers
726	Dry-type power transformers	2735	Dry-type power transformers
905	Loading guide for dry-type power transformers	3953	Loading guide for dry-type power transformers
ISO			
2592	Petroleum products—Determination of flash and fire points—Cleveland open-cup method	—	

CONTENTS

AUSTRALIAN STANDARD

POWER TRANSFORMERS

Part 2: Temperature rise

1 Scope

This part of International Standard IEC 76 identifies transformers according to their cooling methods, defines temperature-rise limits and details the methods of test for temperature-rise measurements. It applies to transformers as defined in the scope of IEC 76-1.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 76. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 76 are encouraged to investigate the possibility of applying the most recent edition of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 76-1: 1993, *Power transformers – Part 1: General*

IEC 85: 1984, *Thermal evaluation and classification of electrical insulation*

IEC 279: 1969, *Measurement of the winding resistance of an a.c. machine during operation at alternating voltage*

IEC 354: 1991, *Loading guide for oil-immersed power transformers*

IEC 606: 1978, *Application guide for power transformers*

IEC 726: 1982, *Dry-type power transformers*

IEC 905: 1987, *Loading guide for dry-type power transformers*

ISO 2592: 1973, *Petroleum products – Determination of flash and fire points – Cleveland open-cup method*

3 Identification symbols according to cooling method

Transformers shall be identified according to the cooling method employed. For oil-immersed transformers this identification is expressed by a four-letter code as described below. Corresponding codes for dry-type transformers are given in IEC 726.