

Australian/New Zealand Standard™

Power transformers

**Part 7: Loading guide for oil-immersed
power transformers
(IEC 60076-7, Ed. 1.0 (2005) MOD)**



AS/NZS 60076.7:2013

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-008, Power Transformers. It was approved on behalf of the Council of Standards Australia on 27 September 2013 and on behalf of the Council of Standards New Zealand on 27 September 2013.
This Standard was published on 29 October 2013.

The following are represented on Committee EL-008:

Australasian Railway Association
Australian Chamber of Commerce and Industry
Australian Industry Group
Department of Resources, Energy and Tourism
Electricity Engineers Association, New Zealand
Energy Efficiency and Conservation Authority of New Zealand
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This Standard was issued in draft form for comment as DR AS/NZS 60076.7.

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Part 7: Loading guide for oil-immersed power transformers (IEC 60076-7, Ed. 1.0 (2005) MOD)

Originated as AS CC10—1965.
Previous edition AS 2374.7—1997.
Revised and redesignated as AS/NZS 60076.7:2013.

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-008, Power Transformers, to supersede AS 2374.7—1997, *Power transformers, Part 7: Loading guide for oil-immersed power transformers*.

The objective of this Standard is to provide guidance and requirements for planners, users, purchasers and designers for the specification and loading of oil-immersed power transformers based on operating temperatures and thermal ageing, with recommendations for limitation of permissible loading according to temperature calculations and measurements.

This Standard is an adoption with national modifications and has been reproduced from IEC 60076-7, Ed. 1.0 (2005), *Power transformers, Part 7: Loading guide for oil-immersed power transformers*, and has been varied as indicated to take account of Australian/New Zealand conditions. The modifications are specified in Appendix ZZ.

Appendix ZZ addresses the following issues:

- (a) Further explanation and guidance for users is considered necessary in some Clauses [5.3(f), 8.1.4(d), 8.3.1 and 8.3.2].
- (b) Because of the high leakage flux in smaller transformers with high short circuit impedance, they need to be given the same consideration as large transformers [Clause 5.5(b)].
- (c) The calculation of temperature according to Equation 6 does not provide sufficiently accurate results for short times and therefore a more accurate equation is provided (Clause 8.2.2).

The previous edition, AS 2374.7—1997, was technically equivalent to, and reproduced from, IEC 60354, Ed. 2.0 (1991). The source text, IEC 60076-7, Ed 1.0 (2005), is a technical revision of IEC 60354, Ed. 2.0 (1991). The changes are discussed in the Introduction. The source text now includes a mathematical calculation of winding and oil time constants that was previously included as an Australian variation only.

The variations described in Appendix ZZ form the Australian and New Zealand variations for the purposes of the CB Scheme for recognition of testing to standards for safety and electrical equipment.

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

- (i) In the source text ‘this part of IEC 60076’ should read ‘this Australian/New Zealand Standard’.
- (ii) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

<i>Reference to International Standard</i>	<i>Australian/New Zealand Standard</i>
IEC	AS/NZS
60076 Power transformers	60076 Power transformers
60076-1 Part 1: General	60076.1 Part 1: General (IEC 60076-1, Ed. 2.1 (2000) MOD)
60076-2 Part 2: Temperature rise for liquid-immersed power transformers	60076.2 Part 2: Temperature rise for liquid-immersed power transformers (IEC 60076-2, Ed. 3.0 (2011) MOD)
	AS
60076-4 Part 4: Guide to the lightning impulse and switching impulse testing—Power transformers and reactors	60076.4 Part 4: Guide to the lightning impulse and switching impulse testing—Power transformers and reactors

IEC	AS/NZS
60076-5 Part 5: Ability to withstand short-circuit	60076.5 Part 5: Ability to withstand short-circuit (IEC 60076-5, Ed. 3.0 (2006) MOD)

Only international references that have been adopted as Australian or Australian/New Zealand Standards have been listed.

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

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