

AS 2374.7—1997

IEC 354:1991

IEC 354:1991/Corr.1:1992

Australian Standard[®]

Power transformers

Part 7: Loading guide for oil-immersed power transformers

[IEC title: Loading guide for oil-immersed power transformers]

This Australian Standard was prepared by Committee EL/8, Power Transformers. It was approved on behalf of the Council of Standards Australia on 25 August 1997 and published on 5 December 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

Review of Australian Standards. To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all Australian Standards and related publications will be found in the Standards Australia Catalogue of Publications; this information is supplemented each month by the magazine 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

This Standard was issued in draft form for comment as DR 96416.

AS 2374.7—1997

Australian Standard[®]

Power transformers

Part 7: Loading guide for oil-immersed power transformers

Originated as AS CC10—1965.
Previous edition AS 1078—1984.
Revised and redesignated AS 2374.7—1997.

Incorporating:
Amdt 1—1998

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140

ISBN 0 7337 1517 6

PREFACE

This Standard was prepared by the Standards Australia Committee EL/8, Power Transformers to supersede AS 1078—1984, *Guide to loading of oil-immersed transformers*.

It is technically equivalent to, and has been reproduced from, IEC 354, *Loading guide for oil-immersed power transformers*, incorporating IEC Corrigendum issued in 1992. (Note that these corrections are not marked in the text).

Appendix ZZ lists variations between this Standard and IEC 354. For the purposes of this Standard, the IEC text is amended, supplemented or replaced as set out in Appendix ZZ. These changes are indicated by a rule in the margin against each clause or part thereof affected.

Appendices ZA and ZB provide information on the determination of the thermal time-constant and indirect measurement of winding hot-spot temperature respectively.

This Standard will apply directly to transformers manufactured to AS 2374, Parts 1 and 2 (1997) and may be used for transformers manufactured to AS 2374—1970. It differs in a number of respects from AS 1078—1984. The range of oil-immersed transformers covered has been extended and now goes beyond the 75 MVA, 132 kV size of the previous guides. Transformers are classified into three size categories—distribution, medium power and large power transformers with different thermal characteristics and limits applicable for each category.

There have been changes to the hot spot factor, oil exponent, temperature and current limits, but no change to the rate of thermal ageing of insulation with temperature. In some cases the changes will result in higher ratings and in other cases lower ratings but limits provided take into consideration the type of loading viz. normal cyclic, long time cyclic and emergency ratings. The weighted average ambient temperatures are now determined by considering a sinusoidal and double sinusoidal temperature variation.

In this Standard the user is required to determine the oil thermal time constant from the transformer temperature rise test, however, in cases when insufficient information is available to do this, an alternative method is given in Appendix ZA as provided in the previous edition. The change in oil time constant for different loads has been dropped in this edition (oil index is now 1.0). For OF and OD cooling, calculations are based on the bottom oil temperature rather than the top oil temperature and for OD cooling a correction factor is applied for variations in ohmic resistance with temperature. The mean oil temperature for these calculations is determined by the R' method.

As in AS 1078—1984 the tables set out in Section 3 are based on a set of transformer characteristics for each category of transformer. No correction factors or similar are provided for variations to these characteristics and following common practice with the use of modern computers, users are encouraged to perform their own calculations based on the algorithms provided.

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 equivalent Australian Standards, as follows:

<i>Reference to International Standard</i>		<i>Australian Standard</i>	
IEC		AS	
76	Power transformers	2374	Power transformers
76-1	Part 1: General	2374.1	Part 1: General requirements
76-2	Part 2: Temperature rise	2374.2	Part 2: Temperature rise

iii

76-4*	Part 4: Tappings and connections	2374.1	Part 1: General requirements
76-5	Part 5: Ability to withstand short-circuit	2374.5	Part 5: Ability to withstand short-circuit

© Copyright – STANDARDS AUSTRALIA

Users of Standards are reminded that copyright subsists in all Standards Australia publications and software. Except where the Copyright Act allows and except where provided for below no publications or software produced by Standards Australia may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from Standards Australia. Permission may be conditional on an appropriate royalty payment. Requests for permission and information on commercial software royalties should be directed to the head office of Standards Australia.

Standards Australia will permit up to 10 percent of the technical content pages of a Standard to be copied for use exclusively in-house by purchasers of the Standard without payment of a royalty or advice to Standards Australia.

Standards Australia will also permit the inclusion of its copyright material in computer software programs for no royalty payment provided such programs are used exclusively in-house by the creators of the programs.

Care should be taken to ensure that material used is from the current edition of the Standard and that it is updated whenever the Standard is amended or revised. The number and date of the Standard should therefore be clearly identified.

The use of material in print form or in computer software programs to be used commercially, with or without payment, or in commercial contracts is subject to the payment of a royalty. This policy may be varied by Standards Australia at any time.

* Superseded by IEC 76-1:1993.

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-