AS 2735—1984

Australian Standard®

DRY-TYPE POWER TRANSFORMERS

[Title allocated by Defence Cataloguing Authority:
TRANSFORMER, POWER, (Dry-Type) NSC 6120]

This Australian standard was prepared by Committee EL/8, Static Electrical Machinery. It was approved on behalf of the Council of the Standards Association of Australia on 31 July 1984 and published on 9 November 1984.

The following interests are represented on Committee EL/8:

Australian-British Trade Association
Australian Electrical and Electronic Manufacturers Association Ltd
Confederation of Australian Industry
Defence Standardization Committee
Electrical Testing Laboratories
Electricity Supply Association of Australia
Electricity Supply Engineers Association of New South Wales
Institution of Engineers, Australia
Railways of Australia Committee

This standard was issued in draft form for comment as DR 83196.

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First published 1984

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

ISBN 0 7262 3510 5

PREFACE

This standard was prepared by the Association's Committee on Static Electrical Machinery. It is based closely on and follows the text of IEC 726: Dry-type Power Transformers.

Where the standard differs from IEC 726 and changes have been made in compliance with Australian requirements, these changes are indicated by a rule in the margin. Only minor deviations from IEC 726 have been made and these are of an editorial nature. Some additional text has been added for further explanation of clauses and the information required with enquiry and order, set out in Appendix A, has been slightly varied to meet Australian conditions.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
DRY-TYPE POWER TRANSFORMERS

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard specifies requirements for dry-type power transformers (including auto-transformers) having highest voltage for equipment values up to and including 36 kV.

The following small and special dry-type transformers are not covered by this standard:

(a) Single-phase transformers rated at less than 1 kV.A and polyphase transformers rated at less than 5 kV.A.

(b) Instrument transformers (covered by AS 1243 and AS 1675).

(c) Transformers for semiconductor converters (AS 1955).

(d) Starting transformers.

(e) Testing transformers.

(f) Traction transformers mounted on rolling stock.

(g) Flameproof transformers.

(h) Welding transformers.

(j) Voltage regulating transformers.

(k) Small power transformers in which safety is a special consideration.

Where Australian standards do not exist for the transformers mentioned above or for other special transformers, this standard may be applicable as a whole or in parts.

1.2 APPLICATION. Dry-type transformers shall comply with this standard and with the appropriate requirements of AS 2374. Where the requirements of this standard and AS 2374 conflict, the requirements of this standard shall prevail.

1.3 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1018 Recommendations for Partial Discharge Measurements

AS 1243 Voltage Transformers for Measurement and Protection

AS 1675 Current Transformers for Measurement and Protection

AS 1824 Insulation Coordination

AS 1852 International Electrotechnical Vocabulary

AS 1939 Classification of Degrees of Protection Provided by Enclosures for Electrical Equipment

AS 1955 Semiconductor Convertors

AS 2374 Power Transformers
Part 1—General Requirements
Part 2—Temperature Rise
Part 3—Insulation Levels and Dielectric Tests
Part 4—Tappings and Connections
Part 5—Ability to Withstand Short-circuit
Part 6—Sound Levels

AS XXXX Electrical Insulating Materials—Evaluation and Classification Based on Thermal Endurance.*

1.4 SERVICE CONDITIONS.

1.4.1 Normal service conditions. This standard gives detailed requirements for transformers for use under the following conditions:

(a) Altitude. A height above sea level not exceeding 1000 m.

NOTE: For greater altitudes, see Clause 1.4.2.

(b) Temperature of cooling air.

(i) For outdoor transformers, never below –25°C and never exceeding 40°C.

(ii) For indoor transformers, never below –5°C and never exceeding 40°C.

In addition, an average air temperature never exceeding—

A. in any one day . . . . . 30°C; and

B. in any one year . . . . . 20°C.

NOTE: For higher temperatures, see Clause 1.4.2.

(c) Wave shape of supply voltage. A supply voltage of which the wave shape is approximately sinusoidal.

(d) Symmetry of polyphase supply voltages. For polyphase transformers, supply voltages which are approximately symmetrical.

1.4.2 Provision for unusual service conditions. The purchaser shall specify in his enquiry any conditions not covered by the normal service conditions in Clause 1.4.1. (See Appendix B.)

Supplementary requirements, within defined limits, for the rating and testing of transformers designed for other than the normal service conditions listed in Clause 1.4.1, such as high temperature of cooling air or altitude above 1000 m are given in Clauses 3.2.2, 3.2.3 and 4.1.2.

For temperature conditions outside the limits covered by the supplementary requirements and special operating conditions, e.g. restricted cooling air circulation, the temperature rise is to be subject to agreement between the purchaser and the manufacturer.

1.5 DEFINITIONS. For the purpose of this standard, the definitions in AS 1852 and AS 2374 and the following apply.

* In course of publication, see DR 83050 (draft revision of AS C320 1958).