Amendment 1 - Aug 1983

AS 2374, Part 1—1982
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Australian Standard 2374, Part 1—1982

POWER TRANSFORMERS
Part 1—GENERAL REQUIREMENTS

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STANDARDS ASSOCIATION OF AUSTRALIA
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The following interests were represented on the committee responsible for the preparation of this standard:

Australian-British Trade Association

Australian Electrical and Electronic Manufacturers Association

Confederation of Australian Industry

Defence Standardization Committee

Electrical testing laboratories

Electricity Supply Association of Australia

Electricity Supply Engineers Association of N.S.W.

Institution of Engineers, Australia

Railways of Australia Committee

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AMENDMENT No 1
to
AS 2374, POWER TRANSFORMERS
PART 1—1982 GENERAL REQUIREMENTS

CORRECTIONS

Summary: This amendment applies to Preface, Clauses 3.7.4 and 4.2.

Published on 8 August 1983.

AUSTRALIAN STANDARD

POWER TRANSFORMERS
Part 1
GENERAL REQUIREMENTS

AS 2374, Part 1—1982

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PREFACE

This standard was prepared by the Association's Committee on Static Electrical Machinery. It is based closely on IEC 76-1, Power Transformers, Part 1: General, and is Part 1 of a six-part standard to supersede AS C61—1970, Power Transformers.

The other Parts of AS 2374 are—

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

Where this standard differs from IEC 76-1 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 76-1 have been made but additional information and requirements have been introduced. The main additions include the following:

(a) Table 2B which sets out the preferred relationship between values of power for mixed cooling.

(b) The extension of Clause 6, Miscellaneous Requirements, to include reference to sound levels (Clause 6.3).

(c) The specification and testing of insulating liquids (Clause 6.4).

(d) Requirements for tests of insulation resistance and partial discharge (Clause 8).

This standard requires reference to the following standards:

AS 1265	Bushings for Alternating Voltages Above 1000 V
AS 1307	Surge Diverters—Non-linear Resistor Type
AS 1767	Insulating Oil for Transformers and Switchgear
AS 1824	Insulation Coordination Part 1—Basic Principles, Standard Insulation Levels and Test Procedures
AS 1852	International Electrotechnical Vocabulary
AS 1883	Guide to Maintenance and Supervision of Insulating Oils in Service
AS 1931	High Voltage Testing Techniques Part 1—General Definitions, Test Requirements, Test Procedures and Measuring Devices
AS 2326	On-load Tap-changers Part 1—Requirements Part 2—Application Guide
AS 2421	Guide to the Selection and Use of Power Transformers
AS 2558	Transformers for Use on Single Wire Earth Return Distribution Systems
AS C1	Standard Voltages and Frequency for A.C. Transmission and Distribution Systems
AS C320	Classification of Insulating Materials for Electrical Machinery and Apparatus on the Basis of Thermal Stability in Service
AS YYYY	Dry-type Transformers*
SAA MP 19	Report on Preferred Numbers and Their Use
BS 355	Mining-type Transformers Part 1—Dry-type Transformers
BS 2538	Air-cooled Flameproof Single-phase Lighting Transformer Units Supplied for High Voltage Systems

The following standards refer to small and special transformers that are specifically excluded from this standard (see Clause 1):

AS 1202	A.C. Motor Starters (up to and including 1000 V)
AS 1243	Voltage Transformers for Measurement and Protection
AS 1675	Current Transformers for Measurement and Protection
AS 1955	Semiconductor Convertors Part 1—General
AS 1966	Electric Arc Welding Machines
AS 3126	Approval and Test Specification for Extra-low Voltage Transformers
AS 3143	Approval and Test Specification for Transformers for Cold-cathode Electric Discharge Lamps and Lighting Systems
AS 3167	Approval and Test Specification for Protective Isolating Transformers
AS C354	Power Transformers for Telecommunication and Electronic Equipment
AS C356	Resistance Welding Equipment Part 1—Transformers and Electrical Performance
BS 1538	Intrinsically-safe Transformers Primarily for Bell-signalling Circuits
BS 3399	Transformers for Use in Ships
BS 3535	Safety Isolating Transformers for Industrial and Domestic Purposes
BS 2G.127	Power and Current Transformers for Use in Aircraft Electrical Power Supply Systems

*In course of preparation.

Page 2. List of referenced standards.

Above referenced standard AS 1265, *add* the following:

AS 1078 Guide to Loading of Oil-immersed Transformers

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
POWER TRANSFORMERS

PART 1—GENERAL REQUIREMENTS

1 SCOPE. This standard specifies general requirements for power transformers (including autotransformers, mining-type transformers, SWER transformers, dry type transformers, transformers for rectifier equipments, power reactors, furnace transformers, earthing transformers and booster transformers), except for the special requirements set out in the following standards:

AS 1028	Power Reactors and Earthing Transformers
AS 1955	Semiconductor Convertors Part 1—General
AS 2558	SWER Transformers
AS YYYY	Dry Type Transformers*
BS 355	Mining-type Transformers Part 1—Dry-type Transformers
BS 2538	Air-cooled Flameproof Single-phase Lighting Transformer Units Supplied from High Voltage Systems

The following small and special transformers are excluded:

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

(b) Current transformers for measurement and protection (see AS 1675).

(c) Voltage transformers for measurement and protection (see AS 1243).

(d) Extra-low voltage transformers (see AS 3126).

(e) Transformers for cold-cathode electric discharge lamps and lighting systems (see AS 3143).

(f) Protective isolating transformers (see AS 3167).

(g) Power transformers for telecommunications and electronic equipment (see AS C354).

(h) Resistance welding equipment—transformers and electrical performance (see C356, Part 1).

(j) Electric arc-welding plant (see AS 1966).

(k) Constant current power and lighting transformers.

(l) X-ray transformers.

(m) Testing transformers.

(n) Motor starting transformers (see AS 1202).

(o) Intrinsically safe transformers primarily for bell signalling circuits (see BS 1538).

(p) Induction regulators.

(q) Safety isolating transformers for industrial and domestic purposes (see BS 3535).

(r) Audio-frequency transformers for cinematograph equipment.

(s) Power transformers for aircraft (see BS 2G.127).

(t) Transformers for use in ships (see BS 3399).

2 SERVICE CONDITIONS.

2.1 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 2.2.

(b) *Temperature of cooling medium.*

(i) For water-cooled apparatus, cooling water at a temperature not exceeding 25° C at the inlet.

(ii) For air-cooled apparatus, air at a temperature never exceeding 40° C, and—

A. for outdoor transformers, never below −25° C; or

B. for indoor transformers, never below −5° C.

In addition, for air-cooled apparatus, an average air temperature never exceeding—

C. in any one day ..... 30° C; and

D. in any one year ..... 20° C.

NOTE: For higher temperatures, see Clause 2.2.

(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.

2.2 Provision for Unusual Service Conditions. The purchaser shall specify in his enquiry any conditions not covered by the normal service conditions in Clause 2.1.

Supplementary requirements, within defined limits, for the rating and testing of transformers designed for other than the normal service conditions listed in Clause 2.1, are given in—

(a) for air-cooled transformers of the dry and oil-immersed types for operation outside the normal temperature limits of cooling air, AS 2374, Part 2;

(b) for all types of transformers for operation at altitudes in excess of 1000 m above sea level, AS 2374, Parts 2 and 3.

Temperature conditions outside the limits covered by the supplementary requirements and special

*In course of preparation.