AS 3858—1990

Australian Standard®

Low voltage switchgear and controlgear—Circuit-breakers

IEC title: Low-voltage switchgear and controlgear, Part 2: Circuit breakers

STANDARDS AUSTRALIA

This Australian Standard was prepared by Committee EL/6, Industrial Switchgear and Controlgear. It was approved on behalf of the Council of Standards Australia on 16 August 1990 and published on 10 December 1990.

The following interests are represented on Committee EL/6:

Australian-British Chamber of Commerce
Australian Electrical and Electronic Manufacturers Association
Bureau of Steel Manufacturers of Australia
Electrical Contractors Association of Australia
Electricity Supply Association of Australia
Independent Electrical Switchboard Manufacturers Association
Institution of Engineers, Australia
Testing Authorities
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PREFACE

This Standard was prepared by the Standards Australia Committee on Industrial Switchgear and Controlgear to supersede AS 1930—1976, *Circuit-breakers for distribution circuits (up to and including 1000 V a.c. and 1200 V d.c.)*, and AS 2184—1980, *Low voltage switchgear and controlgear—Moulded-case circuit-breakers for rated voltages up to and including 600 V a.c. and 250 V d.c.*

AS 1930 and AS 2184 will be withdrawn after an appropriate time, nominally ten years, to allow manufacturers to adapt their range of circuit-breakers to comply with this Standard.

With the exception of Appendices A, F and G, this Standard has been reproduced from IEC 947-2 (1989), *Low-voltage switchgear and controlgear,* Part 2: *Circuit-breakers.*

Appendix A has been prepared from IEC document 17B(Central Office)181 in the same format, amended in accordance with IEC document 17B(Central Office)185.

Appendix F sets out the differences between this Standard and IEC 947-2, and between this Standard and IEC document 17B(Central Office)181.

For the purpose of this Standard, the IEC text is amended, supplemented or replaced as set out in Appendix F. These changes are indicated by a rule in the margin against each clause, table, figure or part thereof affected, or by a reference to Appendix F.

Appendix G sets out information which should be given with enquiries, and orders.

References to other publications should be replaced by references to Australian Standards:

Reference to International Standard		*Australian Standard*	
IEC		AS	
50	International Electrotechnical Vocabulary (IEV)	1852	International electrotechnical vocabulary
50(441)	Switchgear, Controlgear and fuses	1852(441)	Switchgear, controlgear and fuses
112	Method for determining the comparative and the proof tracking indices of solid—insulating materials undermoist conditions		—
269	Low-voltage fuses	2005	Low voltage fuses—Fuses with enclosed fuse-links
269-1	Part 1: General requirements	2005.10	Part 10:
269-2	Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial applications)	2005.20	Part 20: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application)
269-3	Part 3: Supplementary requirements for fuses for use by unskilled persons (fuses mainly for household and similar applications)		—
755	General requirements for residual current operated protective devices		—
898	Circuit-breakers for over-current protection for household and similar installations		—
934	Circuit-breakers for equipment(CBE)		—
947	Low-voltage switchgear and controlgear		—
947-1	Part 1: General rules	3650	Low voltage switchgear and controlgear—Common requirements
947-4	Part 4: Contactors and motor-starters		—

The following Australian documents are referred to in this Standard:

AS

1931 High voltage testing techniques

1931.1 Part 1: General definitions, test requirements, test procedures and measuring devices

1939 Classification of degrees of protection provided by enclosures for electrical equipment

3111 Approval and test specifications for miniature overcurrent circuit-breakers

3190 Approval and test specification for current-operated (core balance) earth-leakage devices

Unless otherwise indicated in Appendix F, specific references to clauses and sub-clauses in Part 1, (IEC 947-1) should be replaced by clauses of the same number in AS 3650. IEC 947-1 clause numbers with one to four digits are generally the same as those of the equivalent clauses in AS 3650.

CONTENTS

STANDARDS AUSTRALIA

Australian Standard
Low voltage switchgear and controlgear—Circuit-breakers

1. General

The provisions of the general rules dealt with in Part 1 (IEC Publication 947-1) are applicable to this standard, where specifically called for. Clauses and sub-clauses, tables, figures and appendices of the general rules thus applicable are identified by reference to Part 1, e.g., Sub-clause 1.2.3 of Part 1, Table IV of Part 1, or Appendix A of Part 1.

1.1 *Scope*

This standard applies to circuit-breakers, the main contacts of which are intended to be connected to circuits, the rated voltage of which does not exceed 1000 V a.c. or 1500 V d.c.; it also contains additional requirements for integrally fused circuit-breakers.

It applies whatever the rated currents, the method of construction or the proposed applications of the circuit-breakers may be.

Supplementary requirements for circuit-breakers used as direct-on-line starters are given in IEC Publication 947-4, applicable to low-voltage contactors and starters.

See Append. F

The requirements for circuit-breakers for the protection of wiring installations in buildings and similar applications, and designed for use by uninstructed persons, are contained in IEC Publication 898.

The requirements for circuit-breakers for equipment (e.g. electrical appliances) are contained in IEC Publication 934.

See Append. F

The requirements for circuit-breakers which are also intended to provide earth-leakage protection are under consideration (see also IEC Publication 755).

For certain specific applications (e.g. traction, rolling mills, marine service) particular or additional requirements may be necessary.

Note. – Circuit-breakers which are dealt with in this standard may be provided with devices for automatic opening under pre-determined conditions other than those of over-current and undervoltage as, for example, reversal of power or current. This standard does not deal with the verification of operation under such pre-determined conditions.

1.2 *Object*

The object of this standard is to state:

a) the characteristics of circuit-breakers;

b) the conditions with which circuit-breakers shall comply with reference to:

1) operation and behaviour in normal service;

2) operation and behaviour in case of overload and operation and behaviour in case of short circuit, including co-ordination in service (discrimination and back-up protection);

3) dielectric properties;