

Australian Standard[®]

Surge arresters

**Part 2: Metal-oxide surge arresters
without gaps for a.c. systems**

This Australian Standard was prepared by Committee EL/7, Power Switchgear. It was approved on behalf of the Council of Standards Australia on 12 August 1996 and published on 5 December 1996.

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**Part 2: Metal-oxide surge arresters
without gaps for a.c. systems**

PREFACE

This Standard was prepared by the Standards Australia Committee EL/7 on Power Switchgear to supersede AS 1307.2, *Surge arresters (diverters), Part 2: Metal-oxide type for a.c. systems*.

This Standard is Part 2 of a series which when completed will consist of the following:

AS

1307 Surge arresters

Part 1: Silicon carbide type for a.c. systems

Part 2: Metal-oxide surge arresters without gaps for a.c. systems

Part 3: Distribution type metal-oxide surge arresters with gaps for a.c. systems

Part 4: Application guide

This Standard is based on and contains the full text of IEC 99-4, *Surge arresters, Part 4: Metal-oxide surge arresters without gaps for a.c. systems* and includes changes for Australian conditions. The IEC text being amended has been retained and is shown boxed. The changes and additions are indicated by a marginal bar.

The objective of this Standard is to adopt IEC 99-4 where possible and add requirements for—

- (a) tests for verification of spark production class;
- (b) seal leak and seal ageing tests;
- (c) polymer housing tests; and
- (d) multiple lightning surge operating duty test.

This Standard presents the minimum criteria for the requirements and testing of gapless metal-oxide surge arresters that are applied to a.c. power systems.

Arresters covered by this Standard are commonly applied to live/front overhead installations in place of the non-linear resistor type gapped arresters covered in AS 1307.1. Protection of low-voltage circuits, below 1 kV, is under consideration.

An accelerated ageing procedure is incorporated in the Standard to simulate the long-term effects of voltage and temperature on the metal-oxide arrester. This is necessary since the metal-oxide resistors will have system power frequency voltage across them during the time the arrester is in service.

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

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CONTENTS

	<i>Page</i>
SECTION 1 GENERAL	
1.1 SCOPE	6
1.2 NORMATIVE REFERENCES	6
1.2 REFERENCES	6
SECTION 2 DEFINITIONS	
2.1 METAL-OXIDE SURGE ARRESTER WITHOUT GAPS	8
2.2 NON-LINEAR METAL-OXIDE RESISTOR	8
2.3 INTERNAL GRADING SYSTEM OF AN ARRESTER	8
2.4 GRADING RING OF AN ARRESTER	8
2.5 SECTION OF AN ARRESTER	8
2.6 UNIT OF AN ARRESTER	8
2.7 PRESSURE RELIEF DEVICE OF AN ARRESTER	8
2.8 RATED VOLTAGE OF AN ARRESTER (U_r)	8
2.9 CONTINUOUS OPERATING VOLTAGE OF AN ARRESTER (U_c)	9
2.10 RATED FREQUENCY OF AN ARRESTER	9
2.11 DISRUPTIVE DISCHARGE	9
2.12 PUNCTURE (BREAKDOWN)	9
2.13 FLASHOVER	9
2.14 IMPULSE	9
2.15 DESIGNATION OF AN IMPULSE SHAPE	9
2.16 STEEP CURRENT IMPULSE	9
2.17 LIGHTNING CURRENT IMPULSE	9
2.18 LONG DURATION CURRENT IMPULSE	9
2.19 PEAK (CREST) VALUE OF AN IMPULSE	9
2.20 FRONT OF AN IMPULSE	10
2.21 TAIL OF AN IMPULSE	10
2.22 VIRTUAL ORIGIN OF AN IMPULSE	10
2.23 VIRTUAL FRONT TIME OF A CURRENT IMPULSE (T_1)	10
2.24 VIRTUAL STEEPNESS OF THE FRONT OF AN IMPULSE	10
2.25 VIRTUAL TIME TO HALF VALUE ON THE TAIL OF AN IMPULSE (T_2)	10
2.26 VIRTUAL DURATION OF THE PEAK OF A RECTANGULAR IMPULSE	10
2.27 VIRTUAL TOTAL DURATION OF A RECTANGULAR IMPULSE	10
2.28 PEAK (CREST) VALUE OF OPPOSITE POLARITY OF AN IMPULSE	10
2.29 DISCHARGE CURRENT OF AN ARRESTER	10
2.30 NOMINAL DISCHARGE CURRENT OF AN ARRESTER (I_n)	10
2.31 HIGH CURRENT IMPULSE OF AN ARRESTER	10
2.32 SWITCHING CURRENT IMPULSE OF AN ARRESTER	11
2.33 CONTINUOUS CURRENT OF AN ARRESTER	11
2.34 REFERENCE CURRENT OF AN ARRESTER	11
2.35 REFERENCE VOLTAGE OF AN ARRESTER (U_{ref})	11
2.36 RESIDUAL VOLTAGE OF AN ARRESTER (U_{res})	11
2.37 POWER FREQUENCY WITHSTAND VOLTAGE VERSUS TIME CHARACTERISTIC OF AN ARRESTER	11
2.38 PROSPECTIVE CURRENT OF A CIRCUIT	11
2.39 PROTECTIVE CHARACTERISTICS OF AN ARRESTER	11
2.40 THERMAL RUNAWAY OF AN ARRESTER	12

2.41	THERMAL STABILITY OF AN ARRESTER	12
2.42	ARRESTER DISCONNECTOR	12
2.43	TYPE TESTS (DESIGN TESTS)	12
2.44	ROUTINE TESTS	12
2.45	ACCEPTANCE TESTS	12
2.46	SPARK	12
2.47	DISTRIBUTION TYPE ARRESTER	12
2.48	SIGNIFICANT INTERNAL GAS VOLUME	12
2.49	HIGHEST VOLTAGE FOR EQUIPMENT (U_m)	13
2.50	ARRESTER INTERRUPTOR	13
2.51	ARRESTER INDICATOR	13
 SECTION 3 IDENTIFICATION AND CLASSIFICATION		
3.1	ARRESTER IDENTIFICATION	14
3.2	ARRESTER CLASSIFICATION	14
3.3	VERIFICATION OF SPARK PRODUCTION	14
3.4	HAZARD OF OPERATION OF DISCONNECTOR, INTERRUPTOR OR INDICATOR DEVICE	18
 SECTION 4 STANDARD RATINGS		
4.1	STANDARD RATED VOLTAGES	19
4.2	STANDARD RATED FREQUENCIES	19
4.3	STANDARD NOMINAL DISCHARGE CURRENTS	19
4.4	SERVICE CONDITIONS	19
 SECTION 5 REQUIREMENTS		
5.1	INSULATION WITHSTAND OF THE ARRESTER HOUSING	21
5.1	INSULATION WITHSTAND	21
5.2	REFERENCE VOLTAGE	21
5.3	RESIDUAL VOLTAGES	21
5.4	PARTIAL DISCHARGES	22
5.5	SEAL LEAKAGE	22
5.5	SEAL TEST	22
5.6	CURRENT DISTRIBUTION IN A MULTI-COLUMN ARRESTER	22
5.7	THERMAL STABILITY	22
5.8	LONG DURATION CURRENT IMPULSE WITHSTAND	22
5.9	OPERATING DUTY	22
5.10	POWER FREQUENCY VOLTAGE VERSUS TIME CHARACTERISTICS OF AN ARRESTER	23
5.11	PRESSURE RELIEF	23
5.12	DISCONNECTORS	23
5.12	DISCONNECTORS, INTERRUPTORS AND INDICATORS	23
5.13	REQUIREMENTS FOR AUXILIARY EQUIPMENT SUCH AS GRADING COMPONENTS	24
5.13	REQUIREMENTS FOR ALL EXTERNAL AUXILIARY EQUIPMENT ...	24
5.14	VERIFICATION OF SPARK PRODUCTION CLASS	24

SECTION 6 GENERAL TESTING PROCEDURE

6.1	MEASURING EQUIPMENT AND ACCURACY	25
6.2	REFERENCE VOLTAGE MEASUREMENTS	25
6.3	TEST SAMPLES	25
6.4	PROTECTION DURING TESTS	25

SECTION 7 TYPE TESTS (DESIGN TESTS)

7.1	GENERAL	26
7.2	INSULATION WITHSTAND TESTS ON THE ARRESTER HOUSING	27
7.2	INSULATION WITHSTAND TEST	27
7.3	RESIDUAL VOLTAGE TESTS	28
7.4	LONG DURATION CURRENT IMPULSE WITHSTAND TEST	30
7.5	OPERATING DUTY TESTS	32
7.6	TESTS OF ARRESTER DISCONNECTORS	38
7.6	TESTS OF ARRESTER DISCONNECTOR, INDICATOR AND INTERRUPTOR DEVICES	38
7.7	SEAL TEST	43
7.8	PRESSURE RELIEF (FAILURE MODE) TEST	46

SECTION 8 ROUTINE TESTS AND ACCEPTANCE TESTS

8.1	ROUTINE TESTS	50
8.2	ACCEPTANCE TESTS	51
8.3	BATCH TEST	53

APPENDICES

A	ABNORMAL SERVICE CONDITIONS	57
B	TEST TO VERIFY THERMAL EQUIVALENCY BETWEEN COMPLETE ARRESTER AND ARRESTER SECTION	58
C	REQUIREMENTS FOR HIGH LIGHTNING DUTY ARRESTERS FOR VOLTAGE RANGE 1 KV TO 52 KV	59
D	PROCEDURE TO VERIFY THE POWER FREQUENCY VOLTAGE VERSUS TIME CHARACTERISTICS OF AN ARRESTER	62
E	GUIDE TO SELECTION OF LINE DISCHARGE CLASS	64
F	ARTIFICIAL POLLUTION TESTING OF METAL-OXIDE SURGE ARRESTERS	66
G	TYPICAL INFORMATION GIVEN WITH ENQUIRIES AND TENDERS ...	67
H	TYPICAL CIRCUIT FOR HIGH CURRENT IMPULSE OPERATING DUTY TEST (See Clause 7.5.4)	70
H	TYPICAL CIRCUIT FOR A DISTRIBUTED CONSTANT IMPULSE GENERATOR FOR THE LONG DURATION CURRENT IMPULSE WITHSTAND TEST (See Clause 7.4)	72
K	TYPICAL MAXIMUM RESIDUAL VOLTAGES	73
K	MAXIMUM RESIDUAL VOLTAGES	74
L	TESTS FOR VERIFICATION OF SPARK PRODUCTION CLASS	75
M	POLYMER HOUSED ARRESTER ENVIRONMENTAL TEST	81
N	ITEMS SUBJECT TO AGREEMENT BETWEEN THE MANUFACTURER AND THE PURCHASER	89
O	MULTIPULSE LIGHTNING IMPULSE CURRENT OPERATING DUTY TEST	90

STANDARDS AUSTRALIA

Australian Standard
Surge arresters

Part 2: Metal-oxide surge arresters without gaps for a.c. systems

SECTION 1 GENERAL

1.1 SCOPE This Standard applies to non-linear metal-oxide resistor type surge arresters without spark gaps designed to limit voltage surges on a.c. power circuits.

This standard basically applies to all metal-oxide surge arresters; however, polymeric housed, GIS, liquid immersed and other special designs may require special consideration in design, test and application.

This Standard basically applies to all metal-oxide surge arresters; however, polymeric housed arresters above 36 kV, GIS, liquid immersed and other special designs may require special consideration in design, test and application.

1.2 NORMATIVE REFERENCES The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60-1: 1989, *High-voltage test techniques. Part 1: General definitions and test requirements.*

IEC 71: *Insulation co-ordination.*

IEC 71-2: 1976, *Insulation co-ordination. Part 2: Application guide.*

IEC 99-1: 1991, *Surge arresters. Part 1: Non-linear resistor type gapped arresters for a.c. systems.*

IEC 99-3: 1990, *Surge arresters. Part 3: Artificial pollution testing of surge arresters.*

IEC 270: 1981, *Partial discharge measurements.*

IEC 815: 1986, *Guide for the selection of insulators in respect of polluted conditions.*

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AS

1018 Partial discharge measurements

1033 High voltage fuses (for rated voltages exceeding 1000 V)

1033.1 Part 1: Expulsion type