AS 62271.308—2005
IEC 62271-308, Ed.1.0 (2002)

AS 62271.308—2005

Australian Standard™

High voltage switchgear and controlgear Part 308: Guide for asymmetrical short-circuit breaking test duty T100a

This Australian Standard was prepared by Committee EL-007, Power Switchgear. It was approved on behalf of the Council of Standards Australia on 20 July 2005.
This Standard was published on 21 September 2005.

The following are represented on Committee EL-007:

Australian British Chamber of Commerce
Australian Electrical and Electronic Manufacturers Association
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This Standard was issued in draft form for comment as DR 05200.

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First published as AS 62271.308—2005.

Published by Standards Australia GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 6882 2

PREFACE

This Standard was prepared by the Standards Australia Committee EL-007, Power Switchgear.

The objective of this Standard is to provide information and test procedures for type testing of circuit breakers relevant to short-circuit breaking performance during asymmetrical test duty (T100a) as required by AS 62271.100.

This Standard is identical with, and has been reproduced from IEC 62271-308, Ed.1.0 (2002), *High-voltage switchgear and controlgear – Part 308: Guide for asymmetrical short-circuit breaking test duty T100a*.

Common numbering of standards falling under the responsibility of EL-007

In accordance with the decision taken by the committee EL-007 a common numbering system will be established in order to align the numbering of Australian Standards falling under the responsibility of EL-007 with IEC standards. All high-voltage switchgear and controlgear Standards will, at their next revision (or as equivalent Standards become available in IEC), become parts of the AS 62271 (High-voltage switchgear and controlgear) series. The table below gives the relationship between future numbering and existing Standard numbers. Standards current at the time of publication of this Standard are marked with an asterick (*).

AS 62271 Series	High-voltage switchgear and controlgear	Old AS Number
1	Common specifications	*AS 2650
100*	High-voltage alternating current circuit breakers	AS 2006
102*	Alternating current disconnectors and earthing switches	AS 1306 and AS 4298
103	Switches for rated voltages above 1 kV and less than 52 kV	*AS/NZS 60265.1
104	Switches for rated voltages of 52 kV and above	*AS 60265.2
106	Alternating current contactors and contactor based motor-starters	*AS 2024
110	Inductive load switching	*AS 4372
200*	AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV	AS 2086
201	AC insulation-enclosed switchgear and controlgear for rated voltages above 1 kV up to and including 38 kV	*AS 2264
202	High-voltage/low-voltage prefabricated substations	*AS 61330
203*	Gas-insulated metal enclosed switchgear for rated voltages above 52 kV	AS 2263
201	Dimensional standardization of terminals	AS 2395
30[illegible]	Use and handling of sulphur hexafluoride (SF_6) in high-voltage switchgear and controlgear	*AS 2791
304	Additional requirements for enclosed switchgear and controlgear from 1 kV to 72,5 kV to be used in severe climatic conditions	*AS 4243
308*	Guide for asymmetrical short-circuit breaking test duty T100a	—

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 page.

(b) In the source text ‘IEC 62271-308’ should read ‘AS 62271.308’.

(c) A full point should be substituted for a comma when referring to a decimal marker.

The terms ‘normative’ and ‘informative’ are used to define the application of the annex to which they apply. A normative annex is an integral part of a standard, whereas an informative annex is only for information and guidance.

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STANDARDS AUSTRALIA

Australia Standard

High voltage switchgear and controlgear
Part 308: Guide for asymmetrical short-circuit breaking test duty T100a

1 General

1.1 Scope

This technical report contains information and test procedures for type testing of circuit-breakers relevant to short-circuit breaking performance during asymmetrical test duty (T100a) as required by IEC 62271-100.

This technical report covers all possible testing cases, i.e. single-phase, three phase, direct tests, synthetic tests, first pole-to-clear factors 1,3 and 1,5.

IEC 62271-100 testing procedures for short-circuit breaking performance during asymmetrical test duty (T100a) are valid only when the d.c. time constant of the test circuit is equal or close to the rated d.c. time constant of the rated short-circuit breaking current.

This technical report can be generally applied, and gives rules to be followed when the d.c. time constant of the test circuit is equal to, or different from, the rated d.c. time constant of the rated short-circuit breaking current. Tolerances on the test parameters are also given in order to allow that more than one rated d.c. time constant with a single test series be covered. This concept of asymmetry equivalence may also help the user in establishing equivalence between system needs and the rating requirements.

When the d.c. time constant of the test circuit is different from the rated d.c. time constant of the rated short-circuit breaking current, the testing procedures given in IEC 62271-100 cannot be applied directly and the testing procedure given in this technical report should be followed. The procedures given in this guide are also fully valid when the d.c. time constant of the test circuit is equal to the to rated d.c. time constant of the rated short-circuit breaking current.

1.2 Reference documents

References to international standards that are struck through in this clause are replaced by references to Australian Standards that are listed immediately thereafter and identified by shading. Any Australian Standard that is identical to the International Standard it replaces is identified as such.

~~IEC 62271-100:2001, *High-voltage switchgear and controlgear — Part 100: High-voltage alternating-current circuit-breakers*~~

AS 62271.100, *High-voltage switchgear and controlgear,* Part 100: *High-voltage alternating-current circuit-breakers*

IEC 60427:2000, *Synthetic testing of high-voltage alternating current circuit-breakers*