Australian Standard®

High-voltage switchgear and controlgear

Part 110: Inductive load switching

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- Australian British Chamber of Commerce
- Australian Electrical and Electronic Manufacturers Association
- Energy Networks Association
- Engineers Australia
- Testing interests (Australia)

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Part 110: Inductive load switching

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PREFACE

This Standard was prepared by the Standards Australia Committee EL-007, Power Switchgear to supersede AS 4372—1996, *High voltage alternating current circuit breakers—Inductive load switching.*

The objective of this Standard is to provide requirements for inductive current switching of a.c. circuit breakers designed for indoor or outdoor installation, for operation at frequencies of 50 Hz and 60 Hz on systems having voltages above 1000 V.

This Standard is identical with, and has been reproduced from IEC 62271-110, Ed. 1.0 (2005), *High-voltage switchgear and controlgear – Part 110: Inductive load switching.*

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 asterisk (*).

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
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
105	Alternating current switch-fuse combinations	*AS 2024
106	Alternating current contactors and contactor-based motor-starters	*AS 60470
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
301*	Dimensional standardization of terminals	AS 2395

303	Use and handling of sulphur hexafluoride (SF6) 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 62271-110’ should read ‘AS 62271.110’.

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

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1 General

1.1 Scope

This International Standard is applicable to a.c. circuit-breakers designed for indoor or outdoor installation, for operation at frequencies of 50 Hz and 60 Hz on systems having voltages above 1000 V and applied for inductive current switching with or without additional short-circuit current breaking duties. The standard is applicable to circuit-breakers in accordance with IEC 62271-100 that are used to switch high-voltage motor currents and shunt reactor currents and also to high-voltage contactors used to switch high-voltage motor currents [1] [1].

Switching unloaded transformers, i.e. breaking transformer magnetizing current, is not considered in this standard. The reasons for this are as follows:

a) due to the non-linearity of the transformer core, it is not possible to correctly model the switching of transformer magnetizing current using linear components in a test laboratory. Tests conducted using an available transformer, such as a test transformer, will only be valid for the transformer tested and cannot be representative for other transformers;

b) as detailed in the guide for application of IEC 62271-100 and IEC 60694 (hereafter referred to as the guide [2]), the characteristics of this duty are usually less severe than any other inductive current switching duty. It should be noted that such a duty may produce severe overvoltages within the transformer winding(s) depending on the circuit-breaker re-ignition behaviour and transformer winding resonance frequencies.

Short-line faults, out-of-phase current making and breaking and capacitive current switching are not applicable to circuit-breakers applied to switch shunt reactors or motors. These duties are therefore not included in this standard.

Subclause 1.1 of IEC 62271-100 is otherwise applicable.

1.2 Normative references

Subclause 1.2 of IEC 62271-100 is applicable with the following addition:

~~IEC 62271-100:2001, *High-voltage switchgear and controlgear – Part 100: High-voltage alternating-current circuit-breakers* [2]~~

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

2 Normal and special service conditions

Clause 2 of IEC 60694 is applicable.

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1 Figures in square brackets refer to the bibliography.

~~2 A consolidated edition is available (2003).~~