

Australian/New Zealand Standard™

**Insulated bushings for alternating
voltages above 1000 V
(IEC 60137, Ed. 5.0 (2003) MOD)**



AS/NZS 60137:2008

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-008, Power Transformers. It was approved on behalf of the Council of Standards Australia on 25 March 2008 and on behalf of the Council of Standards New Zealand on 18 March 2008.

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The following are represented on Committee EL-008:

Australasian Railway Association
Australian Chamber of Commerce and Industry
Australian Industry Group
Australian Greenhouse Office, Department of the Environment and Water Resources
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-008, Power Transformers to supersede AS 1265—1990 on publication.

The objective of this Standard is to provide designers, manufacturers, suppliers, purchasers, test laboratories and users with requirements and tests for bushings for use with electrical equipment with a voltage above 1000 V a.c. and a frequency in the range 15–60 Hz.

This Standard is an adoption with national modifications and has been reproduced from IEC 60137, Ed. 5.0 (2003), *Insulated bushings for alternating voltages above 1 000 V*, and has been varied as indicated to take account of Australian/New Zealand conditions.

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INTRODUCTION

To reflect the current usage of the term “composite bushing”, the definition has been changed to mean a bushing with an insulating envelope consisting of a resin impregnated fibre tube with rubber compound covering. The previous definition of a multi-dielectric bushing is given the term “combined insulation bushing”.

For bushings operating in air-insulated ducting, locally high ambient air temperatures have a significant effect on their current rating. This edition defines a limit to this temperature and specifies corresponding test conditions.

The term “highest voltage for equipment” is introduced into this standard in preference to “rated voltage”. This change is in line with other equipment standards.

Gas-insulated and gas-impregnated bushings have become a mature technology, for use in gas insulated switchgear. Limiting values for temperature rise and dielectric dissipation factor have therefore been introduced.

The special requirements addressed for bushings fitted to transformer have not been considered necessary for bushings fitted to switchgear or used for other applications. A high level of integrity is needed to ensure that the bushing will not fail, or be the initiator of internal flashover in the transformer under test. Dry power-frequency withstand test voltage levels for transformers bushings should be increased according to 9.3. Extension of the range of application of lightning impulse and switching impulse tests, included in IEC 60076-3, is not considered technically or commercially justified for bushing routine or type tests.

The dynamic current withstand test is not mentioned in the text, because insufficient experience has so far been collected to design a realistic test.

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Any table, figure or text of the international standard that is struck through is not part of this standard. Any Australian/New Zealand table, figure or text that is added is part of this standard and is identified by shading.

1 Scope

This International Standard specifies the characteristics and tests for insulated bushings.

This standard is applicable to bushings, as defined in Clause 3, intended for use in electrical apparatus, machinery, transformers, switchgear and installations for three-phase alternating current systems, having highest voltage for equipment above 1000 V and power frequencies of 15 Hz up to and including 60 Hz.

Subject to special agreement between purchaser and supplier, this standard may be applied, in part or as a whole, to the following:

- bushings used in other than three-phase systems;
- bushings for high-voltage, direct current systems;
- bushings for testing transformers;
- ~~terminals for power cables (potheads);~~
- bushings for capacitors.

Special requirements and tests for transformer bushings in this standard apply also to reactor bushings.

This standard is applicable to bushings made and sold separately. Bushings which are a part of an apparatus and which cannot be tested according to this standard, should be tested with the apparatus of which they form part.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

~~IEC 60038:1983, IEC standard voltages —
Amendment 2 (1997)~~

AS 60038, *Standard voltages* (for Australia)

NZS/IEC 38, *IEC Standard voltages* (for New Zealand)