

AS/NZS 60076.25:2024



Australian/New Zealand Standard™

Power transformers

Part 25: Neutral grounding resistors (IEC 60076.25:2023, MOD)



AS/NZS 60076.25:2024

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- Australian Institute of Petroleum
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- Electricity Engineers Association of New Zealand
- Energy Efficiency & Conservation Authority of New Zealand
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Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-008, Power Transformers.

The objective of this document is to apply to dry type natural air-cooled resistors, for neutral grounding of transformers and generators, in order to limit the earth fault current in power systems by means of metallic resistive elements.

For the purposes of this document, the resistor can be —

- (a) used alone or in combination with other electrotechnical products not covered by this document, such as (but not limited to): a step-down single-phase transformer, an open triangle or zig-zag transformer (where the neutral point is not available) and a Petersen coil reactor (in order to increase active power contribution to the fault or reduce time constant for proper protection operation or both);
- (b) designed, manufactured and verified on a one-off basis or fully standardized and manufactured in quantity.

This document specifies —

- (i) the characteristics of the NGR;
- (ii) the service conditions requirements for NGRs;
- (iii) the tests and test methods for confirming that these conditions have been met; and
- (iv) the requirements relating to marking for NGRs.

Annex A provides guidance on how to consider the effect of resistance variation with temperature.

This document is identical with national modifications, and has been reproduced from, IEC 60076-25:2023, *Power transformers – Part 25: Neutral grounding resistors*.

The modifications are additional requirements and are set out in [Appendix ZZ](#), which has been added at the end of the source text.

As this document has been reproduced from an international document, a full point substitutes for a comma when referring to a decimal marker.

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Section FOREWORD

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IEC 60076-25 has been prepared by IEC technical committee 14: Power transformers. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
14/1097/FDIS	14/1101/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.



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A list of all parts in the IEC 60076 series, published under the general title *Power transformers*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

Australian/New Zealand Standard

Power transformers

Part 25: Neutral grounding resistors (IEC 60076.25:2023, MOD)

Section 1 Scope

This part of IEC 60076 applies to dry type natural air-cooled resistors, for neutral grounding of transformers and generators, in order to limit the earth fault current in power systems by means of metallic resistive elements.

For the purposes of this document, the resistor can be:

- used alone or in combination with other electrotechnical products not covered by this document, such as (but not limited to): a step-down single-phase transformer, an open triangle or zig-zag transformer (where the neutral point is not available) and a Petersen coil reactor (in order to increase active power contribution to the fault or reduce time constant for proper protection operation or both);
- designed, manufactured and verified on a one-off basis or fully standardized and manufactured in quantity.

Both terms "neutral grounding resistor" (NGR) and "neutral earthing resistor" (NER) can be used. However, for the purposes of this document and in order to avoid any confusion with "neutral earthing reactor" (NER), the term "neutral grounding resistor" (NGR) is used.

This document specifies:

- the characteristics of the NGR;
- the service conditions requirements for NGRs;
- the tests and test methods for confirming that these conditions have been met;
- the requirements relating to marking for NGRs.

[Annex A](#) provides guidance on how to consider the effect of resistance variation with temperature.

Section 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 60060-1:2010, *High voltage test techniques - Part 1: General definitions and test requirements*

IEC 60071-2, *Insulation co-ordination - Part 2: Application guidelines*

IEC 60076-3:2013, *Power transformers - Part 3: Insulation levels, dielectric tests and external clearances in air*

IEC 60076-3:2013/AMD1:2018

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60529/AMD1:1999

IEC 60529/AMD2:2013