IEC 60034-3

Edition 6.0 2007-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Rotating electrical machines – Part 3: Specific requirements for synchronous generators driven by steam turbines or combustion gas turbines

Machines électriques tournantes – Partie 3: Règles spécifiques pour les alternateurs synchrones entraînés par turbines à vapeur ou par turbines à gaz à combustion

IEC 60034-3:2007

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ROTATING ELECTRICAL MACHINES –

Part 3: Specific requirements for synchronous generators driven by steam turbines or combustion gas turbines

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60034-3 has been prepared by IEC Technical Committee 2: Rotating machinery.

This sixth edition cancels and replaces the fifth edition published in 2005. This edition constitutes a technical revision. The significant technical changes with respect to the previous edition are as follows:

- the contents is now restricted to synchronous generators driven by steam turbines or combustion gas turbines, but covers as well cylindrical rotor and salient-pole generators;
- synchronous motors have been taken out of the scope of part 3.

The text of this standard is based on the following documents:

FDIS	Report on voting
2/1461/FDIS	2/1474/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of IEC 60034 series, published under the general title *Rotating electrical machines,* can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

ROTATING ELECTRICAL MACHINES –

Part 3: Specific requirements for synchronous generators driven by steam turbines or combustion gas turbines

1 Scope

This part of IEC 60034 applies to three-phase synchronous generators, having rated outputs of 10 MVA and above driven by steam turbines or combustion gas turbines. It supplements the basic requirements for rotating machines given in IEC 60034-1.

Common requirements are prescribed together with specific requirements for air, for hydrogen or for liquid cooled synchronous generators.

This part of IEC 60034 also gives the precautions to be taken when using hydrogen cooled generators including:

– rotating exciters driven by synchronous generators;
– auxiliary equipment needed for operating the generators;
– parts of the building where hydrogen might accumulate.

NOTE 1 These requirements also apply to a synchronous generator driven by both a steam turbine and a combustion gas turbine as part of a single shaft combined cycle unit.

NOTE 2 These requirements do not apply to synchronous generators driven by water (hydraulic) turbine or wind turbine.

NOTE 3 The precautions to be taken when using hydrogen are valid for all cases where hydrogen is used as a coolant.

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.

IEC 60034-1, *Rotating electrical machines – Part 1: Rating and performance*

IEC 60034-4, *Rotating electrical machines – Part 4: Methods for determining synchronous machine quantities from tests*

IEC 60045-1, *Steam turbines – Part 1: Specifications*

IEC 60079 (all parts), *Electrical apparatus for explosive gas atmospheres*

3 Terms and definitions

For the purposes of this document, the terms and definitions in IEC 60034-1 together with the following additions apply.