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Irish Standard
I.S. EN IEC 60034-3:2020

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

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I.S. EN IEC 60034-3:2020 is the adopted Irish version of the European Document EN IEC 60034-3:2020, Rotating electrical machines - Part 3: Specific requirements for synchronous generators driven by steam turbines or combustion gas turbines and for synchronous compensators

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EUROPÄISCHE NORM

EN IEC 60034-3

July 2020

ICS 29.160.01

Supersedes EN 60034-3:2008 and all of its amendments and corrigenda (if any)

English Version

Rotating electrical machines - Part 3: Specific requirements for synchronous generators driven by steam turbines or combustion gas turbines and for synchronous compensators (IEC 60034-3:2020)

Machines électriques tournantes - Partie 3: Exigences spécifiques pour les alternateurs synchrones entraînés par des turbines à vapeur ou par des turbines à gaz et pour les compensateurs synchrones (IEC 60034-3:2020)

Drehende elektrische Maschinen - Teil 3: Besondere Anforderungen an Synchrongeneratoren, angetrieben durch Dampfturbinen oder Gasturbinen, und an synchrone Phasenschieber (IEC 60034-3:2020)

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European foreword

The text of document 2/1987/FDIS, future edition 7 of IEC 60034-3, prepared by IEC/TC 2 "Rotating machinery" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60034-3:2020.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2021-03-30
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IEC 60079-0	NOTE	Harmonized as EN IEC 60079-0

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

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Publication	Year	Title	EN/HD	Year
IEC 60034-1	2017	Rotating electrical machines - Part 1: Rating and performance	-	-
IEC 60034-4-1	-	Rotating electrical machines - Part 4-1: Methods for determining electrically excited synchronous machine quantities from tests	EN IEC 60034-4-1	-
IEC 60045-1	-	Steam turbines - Part 1: Specifications	EN IEC 60045-1	-
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IEC 60034-3

Edition 7.0 2020-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

Machines électriques tournantes –
Partie 3: Exigences spécifiques pour les alternateurs synchrones entraînés par des turbines à vapeur ou par des turbines à gaz et pour les compensateurs synchrones

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IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
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IEC 60034-3

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

Machines électriques tournantes – Partie 3: Exigences spécifiques pour les alternateurs synchrones entraînés par des turbines à vapeur ou par des turbines à gaz et pour les compensateurs synchrones

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ROTATING ELECTRICAL MACHINES –

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

FOREWORD

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International Standard IEC 60034-3 has been prepared by IEC technical committee 2: Rotating machinery.

This seventh edition cancels and replaces the sixth edition published in 2007. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) title modified;
b) scope extended to synchronous compensators;
c) rotor overcurrent requirements added;
d) impact of stator harmonics on rotor unbalanced load capability introduced;
e) synchronisation requirements added;

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f) adjustments of temperatures or temperature rise revised for gas turbine applications;

g) requirements for auxiliaries updated.

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

FDIS	Report on voting
2/1987/FDIS	2/1993/RVD

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

This document 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 document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

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ROTATING ELECTRICAL MACHINES –

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

1 Scope

This part of IEC 60034 applies to large three-phase synchronous generators, having rated outputs of 10 MVA and above driven by steam turbines or combustion gas turbines. Also included are synchronous Mvar compensators of the same output range connected to a grid for the purpose of exchanging reactive power.

This document supplements basic requirements for rotating machines given in IEC 60034-1.

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

This document 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.

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.

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

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

2 Normative references

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IEC 60034-4-1, *Rotating electrical machines – Part 4-1: Methods for determining electrically excited synchronous machine quantities from tests*

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

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