

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**



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CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references	6
3 Terms and definitions	6
4 General	7
4.1 General rules	7
4.2 Rated conditions	7
4.3 Rated voltage	7
4.4 Power factor	7
4.5 Rated speed	7
4.6 Ranges of voltage and frequency	8
4.7 Direction of rotation	8
4.8 Stator winding	9
4.9 Generator rated field current and voltage	9
4.10 Winding insulation	9
4.10.1 Thermal class	9
4.10.2 Withstand voltage tests	9
4.11 Insulation against shaft current	9
4.12 Over-speed test	9
4.13 Critical speeds	9
4.14 P-Q capability diagram	9
4.15 Overcurrent requirements	11
4.16 Sudden short circuit	11
4.17 Short-circuit ratio	12
4.18 Direct axis transient and subtransient reactances for generators	12
4.19 Tolerances on short-circuit ratio and direct axis transient and subtransient reactances	12
4.20 Mechanical conditions for rotors	12
4.20.1 Number of starts	12
4.20.2 Turning gear operation	12
4.21 Coolers	13
5 Air-cooled generators	13
5.1 General	13
5.2 Generator cooling	13
5.3 Temperature of primary coolant	13
5.3.1 Temperature detectors	14
6 Hydrogen-cooled or liquid-cooled generators	14
6.1 General	14
6.2 Hydrogen pressure and purity in the casing	14
6.3 Generator housing and cover plates	14
6.4 Stator winding terminals	14
6.5 Temperature of primary coolants, temperatures and temperature rises of the generator	14
6.6 Temperature detectors	15
6.7 Auxiliary system	15

7	Generators for combustion gas turbines or combined cycle applications	16
7.1	General	16
7.2	Service conditions	16
7.2.1	General	16
7.2.2	Primary coolant temperature	16
7.2.3	Number of starts	16
7.2.4	Application of load	16
7.3	Rated output	16
7.4	Capabilities	17
7.4.1	General	17
7.4.2	Base capability	17
7.4.3	Temperature rise and temperature at base capability	18
7.4.4	Peak capability	19
7.5	Rating plate	19
7.6	Temperature tests	19
	Annex A (normative) Precautions to be taken when using hydrogen cooled turbine-driven synchronous generators	20
	Bibliography	27
	Figure 1 – Operation over ranges of voltage and frequency	8
	Figure 2 – Typical P-Q capability diagram	10
	Figure 3 – Typical generator capability curves	18
	Figure A.1 – Example of a large hydrogen supply unit feeding one or more generators (simplified diagram)	26

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ROTATING ELECTRICAL MACHINES –

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

FOREWORD

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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.