

GP 16-09-03	Synchronous Generators	August 2003
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Synchronous Generators

GP 16-09-03

Scope

[I] This Global Practice (GP) covers the design and inspection of synchronous generators of the cylindrical rotor and salient pole type rated over 1000 kW and driven by steam turbines or combustion gas turbines.

[I] An asterisk (*) indicates that a decision by Purchaser is required or that additional information is furnished by Purchaser.

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1. Required References

[I] This Section lists Practices and Standards that are generically referenced and assumed to be a part of this document. Unless otherwise specified herein, use the latest edition.

[I] Purchase and use of equipment covered by this Practice shall conform to nationally and locally applicable codes and standards which are approved by the Owner's Engineer for the location where the equipment is installed.

1.1. Global Practices–ExxonMobil Engineering Practices

GP 02-01-01	Plant Noise Design Criteria
GP 10-12-01	Vibration, Axial-Position, and Bearing-Temperature Monitoring Systems for Compressors and Drivers
GP 10-14-01	Lube and Seal Oil Systems for Machinery
GP 16-06-01	Substation Layout
GP 20-01-01	Inspection of Equipment and Materials

1.2. ExxonMobil Data Sheets

ExxonMobil Data Sheets	ExxonMobil Data Sheet Home Page
T160903C03	Electrical - Synchronous Motors and Generators - Purchasers Synchronous Motor Data Sheet (Furnish with Proposal) (API STD 546) - Customary Units

1.3. IEC–International Electrotechnical Commission

* [I] The following Standard shall be used with this Practice as specified by Purchaser.

IEC 60085	Thermal Evaluation and Classification of Electrical Insulation
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* [I] For other conditions of purchase and use, the applicable standards of manufacture and test will be specified by Purchaser.

2. Additional Requirements for Use in the U.S.

[I] The latest revision of the following standards shall be used for generators purchased in the U.S. for use in the U.S.

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2.1. ANSI–American National Standards Institute

ANSI C50.10	Rotating Electrical Machinery - Synchronous Machines
ANSI C50.13	Rotating Electrical Machinery - Cylindrical-Rotor Synchronous Generators
ANSI C50.15	Rotating Electrical Machinery - Hydrogen-Cooled, Combustion-Gas-Turbine-Driven, Cylindrical-Rotor Synchronous Generators - Requirements

2.2. API–American Petroleum Institute

API STD 546	Brushless Synchronous Machines - 500 kVA and Larger
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2.3. IEEE–Institute of Electrical and Electronics Engineers

IEEE C50.14	Requirements for Combustion Gas Turbine Driven Cylindrical Rotor Synchronous Generators (ANSI/IEEE)
IEEE 115	Guide: Test Procedures for Synchronous Machines Part I - Acceptance and Performance Testing Part II - Test Procedures and Parameter Determination for Dynamic Analysis
IEEE 421.5	Recommended Practice for Excitation System Models for Power System Stability Studies

2.4. NEMA–National Electrical Manufacturers Association

NEMA MG 1	Motors and Generators
NEMA SM 23	Steam Turbines for Mechanical Drive Service
NEMA SM 24	Land Based Steam Turbine Generator Sets 0 to 33,000 kW

3. Vendor Qualification

[I] Generators shall be supplied by Vendors qualified by experience in manufacturing the units proposed. To qualify, Vendor must have manufactured, at the proposed point of manufacture, at least two generators of similar design and comparable output, speed, and voltage rating. These generators must have been in service at least one year and must be performing satisfactorily. Vendor shall submit a list of operating units.

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