

GP 10-07-02	Special Purpose Steam Turbines	July 2001
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Special Purpose Steam Turbines

GP 10-07-02

Scope

- 1) [I] This Global Practice (GP) refers to API STD 612-4, 4th Edition, June 1995, which is a part of this GP.
- 2) [I] This GP covers special purpose steam turbines primarily intended for continuous, unspared operation.
- 3) [I] All requirements specified in this GP are additions to those of API STD 612-4 unless specifically noted as exceptions. Paragraph numbers in this GP which do not appear in API STD 612-4 are new paragraphs.
- 4) [I] An asterisk (*) indicates that a decision by Purchaser is required or that additional information is furnished by Purchaser.

Note: A bullet (●) is shown in API STD 612-4 indicating that a Purchaser's decision is required.

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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.

1.1. Global Practices–ExxonMobil Engineering Practices

GP 02-01-01	Plant Noise Design Criteria
GP 03-16-01	Flanged Joints, Gaskets, and Bolting
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 18-03-04	Pressure Casting Quality and Inspection
GP 18-07-01	Welding Procedures
GP 18-10-01	Additional Requirements for Materials
GP 18-12-01	Positive Material Identification
GP 20-01-01	Inspection of Equipment and Materials

1.2. ExxonMobil Data Sheets

ExxonMobil Data Sheets	ExxonMobil Data Sheet Home Page
D100702C01	Special Purpose Steam Turbine (API 612-4th) - Vendor Drawing and Data Requirements - Documentation Requirements Sheet
I100702C01	Special Purpose Steam Turbine (API 612-4th) - Inspection and Testing Requirements
T100702C01	Special Purpose Steam Turbine (API 612-4th) - Customary Units
T100702M01	Special Purpose Steam Turbine (API 612-4th) - Metric Units

1.3. API–American Petroleum Institute

API STD 612-4	Special-Purpose Steam Turbines for Petroleum, Chemical, and Gas Industry Services
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2. Additional Requirements

* [I] The following Practices and Standard shall be used with this GP as specified by the Owner's Engineer.

2.1. Global Practices–ExxonMobil Engineering Practices

GP 03-03-08	Washing Systems for Steam Turbines
GP 10-10-01	Special Purpose Gear Units
GP 15-01-02	Instrumentation for Compressors and Drivers
GP 15-07-01	Electric Power Branch Circuit Design for Instrumentation
GP 15-07-02	Protective Systems
GP 15-11-01	Instrument Control Panels
GP 16-09-01	Low Voltage AC Motors Up to 200 HP (150 kW)
GP 16-09-02	AC Motors: Medium Voltage and Low Voltage Over 200 HP (150 kW)

2.2. ASTM–American Society for Testing and Materials

ASTM A 488/A 488M	Standard Practice for Steel Castings, Welding, Qualifications of Procedures and Personnel
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3. Revisions to API Standard 612

[I] All headings contained herein correspond to paragraph numbering within API STD 612-4 and reflect additions, substitutions, modifications, and deletions. All provisions not modified or deleted remain in force.

Modifications to Section 1: General

1.1.1. Addition: Scope

- 1) [O], [R] Special purpose steam turbines 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 turbines of comparable power, speed, and steam conditions. These turbines must have been in service for at least one year and be performing satisfactorily. Also see Item 4 of this Section.

Alternatively, Vendor may satisfy this experience requirement on an individual component and service condition basis. Experience need not be concentrated in a single turbine, but may exist in

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several different operating turbines. To qualify, however, each of these turbines must have been in service for at least one year and be performing satisfactorily.

- a) The critical areas relative to service conditions which must be demonstrated to the satisfaction of the Owner's Engineer include, but are not limited to the following:
 - i) Speed
 - ii) Power rating
 - iii) Pressures
 - iv) Temperatures
- b) The critical areas relative to mechanical design which must be demonstrated to the satisfaction of the Owner's Engineer include, but are not limited to the following:
 - i) Sealing system
 - ii) Bearing design and loads
 - iii) Casing size and design
 - iv) Casing joint
 - v) Extraction control - single and double extraction
 - vi) Nozzle and diaphragm design
 - vii) Rotor and blade design
 - viii) Number of stages
 - ix) Rotor dynamics
 - x) Material selection
 - xi) Coupling design and arrangement
- 2) In the area of component mechanical design, the vendor must show that each component has operated under similar conditions as those of the proposed turbine.
- 3) Steam turbines manufactured under a license agreement shall carry the licenser's written guarantee.
- 4) * Where Vendor qualification requirement of Item 2 of this Section prevents the application of the latest technology, Vendor shall submit a second alternative proposal incorporating such features for evaluation by the Owner's Engineer. The proposal shall specifically identify the undemonstrated features and state their advantages.

1.1.2. Addition: Scope

[I] Special purpose steam turbines are those used as drivers for:

- a) Special Purpose Centrifugal Compressors and Axial Compressors
- b) Rotary Screw Compressors
- c) Reciprocating process gas compressors which require double reduction gearing and are also 1000 hp (750 kW) or larger
- d) Generators greater than 1000 kW

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