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| GP 10-08-01 | Combustion Gas Turbines | February 2002 |
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# Combustion Gas Turbines

## GP 10-08-01

### Scope

- 1) This Global Practice (GP) refers to API STD 616-4, 4th Edition, August 1998, which is part of this GP.
- 2) [I] This GP covers combustion gas turbines including related auxiliary equipment.
- 3) [I] All Specifications in this GP are additions to those of API STD 616-4 unless specifically noted as exceptions. Paragraph numbers in this GP which do not appear in API STD 616-4 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 616-4 indicating that a Purchaser's decision is required.

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## 1. Required References

[I] This Section lists Practices and Standards that shall be used with this Practice.

### 1.1. Global Practices–ExxonMobil Engineering Practices

|                             |                                                                                                   |
|-----------------------------|---------------------------------------------------------------------------------------------------|
| <a href="#">GP 02-01-01</a> | Plant Noise Design Criteria                                                                       |
| <a href="#">GP 10-11-01</a> | Sizing of Drivers and Transmissions for Compressors, Fans, and Pumps                              |
| <a href="#">GP 10-12-01</a> | Vibration, Axial-Position, and Bearing-Temperature Monitoring Systems for Compressors and Drivers |
| <a href="#">GP 10-14-01</a> | Lube and Seal Oil Systems for Machinery                                                           |
| <a href="#">GP 15-02-01</a> | Temperature Instruments                                                                           |
| <a href="#">GP 15-03-01</a> | Pressure Instruments                                                                              |
| <a href="#">GP 15-05-01</a> | Level Instruments                                                                                 |
| <a href="#">GP 15-06-03</a> | Programmable Logic Controllers                                                                    |
| <a href="#">GP 15-07-02</a> | Protective Systems                                                                                |
| <a href="#">GP 15-09-01</a> | Control Valves                                                                                    |
| <a href="#">GP 15-11-01</a> | Instrument Control Panels                                                                         |
| <a href="#">GP 15-12-01</a> | Instrument Wire and Cable                                                                         |
| <a href="#">GP 18-07-01</a> | Welding Procedures                                                                                |
| <a href="#">GP 18-10-01</a> | Additional Requirements for Materials                                                             |
| <a href="#">GP 18-12-01</a> | Positive Material Identification                                                                  |
| <a href="#">GP 20-01-01</a> | Inspection of Equipment and Materials                                                             |

### 1.2. API–American Petroleum Institute

|               |                                                                                |
|---------------|--------------------------------------------------------------------------------|
| API STD 616-4 | Gas Turbines for Petroleum, Chemical, and Gas Industry Services Fourth Edition |
|---------------|--------------------------------------------------------------------------------|

### 1.3. ASME–American Society of Mechanical Engineers

|            |                           |
|------------|---------------------------|
| ASME B17.1 | Keys and Keyseats R(1998) |
|------------|---------------------------|

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## 2. Additional Requirements

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

### 2.1. Global Practices–ExxonMobil Engineering Practices

|                             |                                                                |
|-----------------------------|----------------------------------------------------------------|
| <a href="#">GP 03-16-01</a> | Flanged Joints, Gaskets, and Bolting                           |
| <a href="#">GP 10-07-01</a> | General Purpose Steam Turbines                                 |
| <a href="#">GP 10-07-02</a> | Special Purpose Steam Turbines                                 |
| <a href="#">GP 10-10-01</a> | Special Purpose Gear Units                                     |
| <a href="#">GP 15-01-02</a> | Instrumentation for Compressors and Drivers                    |
| <a href="#">GP 15-07-01</a> | Electric Power Branch Circuit Design for Instrumentation       |
| <a href="#">GP 16-09-01</a> | Low Voltage AC Motors Up to 200 HP (150 kW)                    |
| <a href="#">GP 16-09-02</a> | AC Motors: Medium Voltage and Low Voltage Over 200 HP (150 kW) |

### 2.2. Military Specifications

|            |                                                                    |
|------------|--------------------------------------------------------------------|
| MIL-E-5007 | Engine, Aircraft, Turbojet and Turbofan, General Specification for |
|------------|--------------------------------------------------------------------|

### 2.3. NFPA–National Fire Protection Association

|          |                                                |
|----------|------------------------------------------------|
| NFPA 70  | National Electrical Code                       |
| NFPA 750 | Standard on Water Mist Fire Protection Systems |

## 3. Revisions to API Standard 616

[I] All headings contained herein correspond to paragraph numbering within API STD 616-4 and reflect additions, substitutions, modifications, and deletions. All provisions not modified or deleted remain in force.

## Modifications to Section 1: Scope

### 1. Addition: Scope

Vendor qualification. Gas turbines shall be supplied by Vendors qualified by experience with manufacture or packaging of units proposed. Vendor is considered qualified by experience if, at the location of proposed manufacture, he has previously manufactured two gas turbines of the same model meeting the following requirements:

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- 1) Identical design and materials of the turbine/compressor rotor and combustion gas and air path stationary parts.
- 2) Rated power output and inlet temperatures to the first stage turbine stator vanes equal to or higher than those of the proposed machines.
- 3) Speed ranges from minimum to maximum continuous speed covering the speed range of the proposed machines.
- 4) Fuels similar to those specified for the proposed machine.
- 5) Controls, protective and auxiliary systems of similar type and design.

The two gas turbines shall have been in continuous operation for at least 16000 fired hours, have performed satisfactorily and not have suffered major damage to the compressor/turbine rotors or stationary parts in the combustion air/hot gas path.

\* Proof of compliance with the above requirements, or any deviations thereof, shall be submitted to Purchaser with the equipment proposal for approval by the Owner's Engineer.

Gas turbines manufactured under a license agreement shall carry the licensor's written guarantee.

Licensee manufacture of gas turbines for noncritical, constant speed power generation shall be accepted without licensor's backup guarantee provided licensee is qualified by experience requirements of this paragraph, and certifies that design and materials will be furnished in strict compliance with the licensor's design and specifications.

## 1. Addition: Scope

Where Vendor qualification requirement above 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.

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## Modifications to Section 4: Basic Design

### 4.1.3. Addition: General

[I] Gas turbine size shall be per [GP 10-11-01](#).

### 4.1.10. Addition: General

[E] Noise. Gas turbine Vendor shall submit noise emission data for the quoted machine with its proposal per [GP 02-01-01](#).

### 4.1.3. Addition: General

\* [R], [M] Gas turbine and auxiliaries shall be suitable for outdoor installation in the climatic zone specified.

### 4.1.3. Addition: General

\* [O], [R] A spare rotor(s) (turbine/compressor) and stationary blades and carrier (stator) are required unless otherwise specified.

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