

	Combustion Gas Turbines (This practice is appropriate for attachment to Inquiry or Purchase Document)	IP 10-8-1 Page 1 of 6 Rev. 1 June 1999
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**THE FOLLOWING PARAGRAPH NUMBERS REFER TO API 616, FOURTH EDITION, AUGUST 1998
WHICH IS A PART OF THIS PRACTICE**

1 - SCOPE

I 1.0 SCOPE

- a. (Exception) This practice covers combustion gas turbines including related auxiliary equipment.
- b. All specifications in this practice are additions to those of **API 616** unless specifically noted as exceptions. Paragraph numbers in this practice which do not appear in **API 616** are new paragraphs.
- c. **An asterisk (*)** indicates that a decision by the Purchaser is required or that additional information is furnished by the Purchaser.

Note: A Bullet (•) is shown in **API 616** indicating that a Purchaser's decision is required.

- d. Vendor qualification. Gas turbines shall be supplied by vendors qualified by experience to manufacture or package the 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:
 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 16,000 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 the 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 will 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.

- e. Where the vendor qualification requirement of **Par. 1.0d** prevents the application of the latest technology, the 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.

2 - REFERENCES

I 2.1 REFERENCED STANDARDS

- a. **Table 1** lists the practices and standards which shall be used with this practice.
- * b. **Table 2** lists the practices which shall be used with this practice **as specified** by the Purchaser.

TABLE 1

PRACTICES			
IP 2-1-1	Plant Noise Design Criteria	IP 15-6-3	Programmable Logic Controllers
IP 10-11-1	Sizing of Drivers and Transmissions for Compressors, Fans, and Pumps	IP 15-7-2	Protective Systems
IP 10-12-1	Vibration, Axial Position, and Bearing-Temperature Monitoring Systems for Compressors and Drivers	IP 15-9-1	Control Valves
IP 10-14-1	Lube and Seal Oil Systems for Machinery	IP 15-11-1	Instrument Control Panels
IP 15-2-1	Temperature Instruments	IP 15-12-1	Instrument Wire and Cable
IP 15-3-1	Pressure Instruments	IP 18-10-1	Additional Requirements for Materials
IP 15-5-1	Level Instruments	IP 18-12-1	Positive Material Identification
		IP 20-1-1	Inspection of Equipment and Materials
STANDARDS			
API Standard			
616	Gas Turbines for the Petroleum, Chemical, and Gas Industry Services		

TABLE 2

PRACTICES			
IP 3-16-1	Flanged Joints, Gaskets, and Bolting	IP 15-7-1	Electric Power Branch Circuit Design for Instrumentation
IP 10-7-1	General Purpose Steam Turbines	IP 16-9-1	Low Voltage A-C Motors Up to 200 HP (150 kW)
IP 10-7-2	Special Purpose Steam Turbines	IP 16-9-2	A-C Motors: Medium Voltage and Low Voltage Over 200 HP (150 kW)
IP 10-10-1	Special Purpose Gear Units		
IP 15-1-2	Instrumentation for Compressors and Drivers		

4 - BASIC DESIGN

	4.1	GENERAL
I	4.1.3	Gas turbine size shall be per IP 10-11-1 .
E	4.1.10	Noise. Gas turbine vendor shall submit noise emission data for the quoted machine with its proposal per IP 2-1-1 .
R,M	* 4.1.19	Gas turbine and auxiliaries shall be suitable for outdoor installation in the climatic zone specified .
O,R	* 4.1.23	A spare rotor(s) (turbine/compressor) and stationary blades and carrier (stator) are required unless otherwise specified.
	4.3	COMBUSTORS AND FUEL NOZZLES
O,R	4.3.2	The control system shall raise an alarm upon failure of monitor thermocouples and shall identify which thermocouple has failed. The system shall be capable of raising further device specific alarms subsequent to the initial failure.
	4.7	DYNAMICS
	4.7.3	TORSIONAL ANALYSIS
R	* 4.7.3.2	The exemption of identical trains from the requirements of Pars. 4.7.3.1 through 4.7.3.5 shall be approved by the Owner's Engineer.
I	4.7.3.4	Change reference to Par. 4.7.4.2 to 4.7.3.2.
I	4.7.3.5	Change reference to Par. 4.7.4.1 through 4.7.4.4 to 4.7.3.1 through 4.7.3.4.
	4.8	BEARINGS AND BEARING HOUSINGS
	4.8.5	BEARING HOUSINGS
I	4.8.5.3	(Exception) The probe installation shall be as specified in IP 10-12-1 .
I	4.8.5.5	Thrust and radial bearings shall be fitted with bearing metal temperature sensors per IP 10-12-1 .