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Special Purpose Steam Turbines (ISO 10437 or API 612)

Group Instruction for Supply

**BP GROUP
ENGINEERING TECHNICAL PRACTICES**

Foreword

This is the third issue of Engineering Technical Practice (ETP) Group Instruction for Supply (GIS) GIS 34-302.

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Introduction

- a. Requirements for special purpose applications of steam turbines in the petroleum, petrochemical, and natural gas industries are based on ISO 10437 (2003). ISO 10437 is equivalent to API Std 612, sixth edition, November 2005.
- b. Requirements of this GIS are modifications to ISO 10437.
- c. Modifications to ISO 10437 are defined as Add, Delete, or Modify to Read.
- d. Paragraph numbers in this GIS correspond to ISO 10437.
- e. Paragraphs of ISO 10437 that are not revised remain applicable.



1 Scope

Add

This GIS, together with the documents referenced herein, constitutes minimum technical requirements for this equipment.

2 Normative references

Add

BP GP 12-45	Electrical for Packaged Equipment.
BP GIS 15-011	Noise Control.
BP GP 30-65	Control Panels.
BP GP 30-70	Control and Instrumentation in Vendor Packaged Equipment.
BP GP 32-10	Quality Management for Manufacturing - Overall Strategy.
BP GP 32-11	Quality Management for Manufacturing - Implementation of QA/QC Requirements into the PSCM Process.
BP GP 32-12	Quality Management for Manufacturing - Rotating Equipment.
BP GIS 34-501	Special Purpose Gear Units (API 613).
BP GIS 34-503	Special Purpose Couplings (API 671).
BP GIS 34-701	Lubrication, Shaft Sealing, and Control Oil Systems and Auxiliaries (ISO 10438).
BP GIS 34-705	Machinery Protection Systems (API 670).
BP GIS 36-103	Positive Materials Identification (PMI) for Pressure Vessels, Piping, and Other Components.
BP GP 42-10	Piping Systems (ASME B31.3).
API Publ 684	Tutorial on the API Standard Paragraphs Covering Rotor Dynamics and Balance (An Introduction to Lateral Critical and Train Torsional Analysis and Rotor Balancing).

5 Statutory requirements

Add

- a. In case of conflict, order of precedence shall be:
 1. Local codes and standards.
 2. Purchase order/requisition/contract.
 3. Project data sheet and drawings.
 4. This GIS.
 5. Referenced BP documents, codes, and industry standards.
- b. In the event of a conflict, manufacturer shall immediately notify BP for written resolution.
- c. Deviation from the requirements specified shall not be assumed to be acceptable by pump manufacturer.



6 Basic design

6.1 General

6.1.1 Add

Turbines shall be sufficiently robust to withstand, without damage, results of occasional abnormal conditions of limited duration, such as surging of compressors or electrical faults on generators.

6.1.2 Modify to Read

a. Turbine vendor

1. For electric power generation applications, turbine vendor shall be responsible for coordination of design and for satisfactory functioning of complete unit (i.e., turbine, generator, transmission, and ancillaries).
2. Turbine vendor that supplies equipment which it has not manufactured shall, in all respects, be responsible for ensuring that designs of such items are compatible with each other and with turbine vendor equipment.
3. Satisfactory functioning of complete unit shall form part of turbine vendor contractual guarantee.

- ##### b. For other applications, driven equipment vendor should normally be responsible for overall coordination. Turbine vendor shall cooperate with driven equipment vendor to facilitate development of complete unit.

Add to h)

1. Uncoupled or unloaded operation shall undergo a safety review of the operating procedure (especially of overspeed protection).
2. The safety review shall be completed before the operating procedure is performed. This applies to factory testing and site installations.

6.1.15 Modify to Read

Sound and noise shall comply with GIS 15-011.

6.2 Nameplate and rotation arrows

6.2.5 Add

- a. All rotor responses, regardless of amplification factor (AF), shall also be stamped on the nameplate. If necessary, a separate critical speed nameplate shall be furnished.
- b. Equipment weights shall be stamped on equipment tag. This weight shall include turbine, complete with cover, rotor, and diaphragms.

7 Casings

7.1 Pressure casings

7.1.1 Add

- a. Casing shall be suitable for pressures and temperatures encountered if running uncoupled with design inlet steam conditions.
- b. Actual maximum allowable pressure and temperature for mechanical strength purposes shall be stated on the data sheet.

