

Gas Turbines for the Petroleum, Chemical, and Gas Industry Services

API STANDARD 616
SIXTH EDITION, SEPTEMBER 2022



American
Petroleum
Institute

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Foreword

This standard is based on the accumulated knowledge and experience of manufacturers and users of gas turbines. The objective of this standard is to provide a purchase specification to facilitate the procurement and manufacture of gas turbines for use in petroleum, chemical, and gas industry services.

Energy conservation is of concern and has become increasingly important in all aspects of equipment design, application, and operation. Thus, innovative energy conserving approaches should be aggressively pursued by the manufacturer and the user during these steps. Alternative approaches that may result in improving energy utilization should be thoroughly investigated and brought forth. This is especially true of new equipment proposals, since the evaluation or purchase options will be based increasingly on total life costs as opposed to acquisition cost alone. Equipment manufacturers, in particular, are encouraged to suggest alternatives to those specified when such approaches achieve improved energy effectiveness and reduced total life costs without sacrifice of safety or reliability.

This standard requires the purchaser to specify certain details and features. Although it is recognized that the purchaser may desire to modify, delete, or amplify sections of this standard, it is strongly recommended that such modifications, deletions, and amplifications be made by supplementing this standard, rather than by rewriting or incorporating sections thereof into another standard.

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Shall: As used in a standard, "shall" denotes a minimum requirement in order to conform to the standard.

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Important Information Concerning Use of Asbestos or Alternative Materials

Asbestos is specified or referenced for certain components of the equipment described in some API standards. It has been of extreme usefulness in minimizing fire hazards associated with petroleum processing. It has also been a universal sealing material, compatible with most refining fluid services.

Certain serious adverse health effects are associated with asbestos, among them the serious and often fatal diseases of lung cancer, asbestosis, and mesothelioma (a cancer of the chest and abdominal linings). The degree of exposure to asbestos varies with the product and the work practices involved.

Consult the most recent edition of the Occupational Safety and Health Administration (OSHA), U.S. Department of Labor, Occupational Safety and Health Standard for Asbestos, Tremolite, Anthophyllite, and Actinolite, 29 *Code of Federal Regulations* Section 1910.1001; the U.S. Environmental Protection Agency (EPA), National Emission Standard for Asbestos, 40 *Code of Federal Regulations* Sections 61.140 through 61.156; and the EPA rule on labeling requirements and phased banning of asbestos products (Sections 763.160 through 763.179).

There are currently in use and under development a number of substitute materials to replace asbestos in certain applications. Manufacturers and users are encouraged to develop and use effective substitute materials that can meet the specifications for, and operating requirements of, the equipment to which they would apply.

Safety and health information with respect to particular products or materials can be obtained from the employer, the manufacturer or supplier of that product or material, or the material safety datasheet.

Contents

1	Scope	1
1.1	General.....	1
1.2	Alternative Designs	1
1.3	Conflicts.....	1
2	Normative References	1
3	Terms, Definitions, Acronyms, and Abbreviations	6
3.1	Terms and Definitions	6
3.2	Acronyms and Abbreviations.....	14
4	General—Unit Responsibility	16
5	Requirements	16
5.1	Units of Measure.....	16
5.2	Statutory Requirements	17
5.3	Documentation Requirements	17
6	Basic Design	17
6.1	General.....	17
6.2	Air Emissions.....	20
6.3	Noise Emissions	21
6.4	Cooling Water Systems.....	21
6.5	Package Design	21
6.6	Environmental Conditions	23
6.7	Pressure Casings	24
6.8	Casing Bolts.....	25
6.9	Casing Design for Field Balancing	26
6.10	Combustors.....	26
6.11	Combustion Temperature Measurement.....	26
6.12	Fuel Injectors	26
6.13	Casing Connections	26
6.14	Rotating Elements	27
6.15	Seals.....	30
6.16	Dynamics	30
6.17	Bearings and Bearing Housing	48
6.18	Bearing Housings	52
6.19	Lubrication	52
6.20	Materials	53
6.21	Bolting.....	55
6.22	Castings.....	55
6.23	Forgings.....	57
6.24	Welding.....	57
6.25	Impact Test Requirements.....	58
6.26	Nomenclatures and Rotational Arrows	58
7	Accessories	59
7.1	Starting and Helper Driver	59
7.2	Gears, Couplings, and Guards	61
7.3	Mounting Plates	62
7.4	Baseplate	67
7.5	Controls and Instrumentation	69
7.6	Piping and Appurtenances	84
7.7	Inlet and Exhaust Systems	86
7.8	Insulation, Weatherproofing, and Fire Protection.....	100
7.9	Fuel System.....	104

7.10	Access Routes	118
7.11	Special Tools.....	118
8	Inspection, Testing, and Preparation for Shipment.....	118
8.1	General.....	118
8.2	Inspection.....	119
8.3	Testing	121
8.4	Preparation for Shipment.....	129
9	Vendor's Data.....	132
9.1	General.....	132
9.2	Proposals	135
9.3	Contract Data	138
Annex A (informative) Typical Datasheets		141
Annex B (normative) Gas Turbine Vendor Drawing and Data Requirements (VDDR)		178
Annex C (normative) Procedure for the Verification of Residual Unbalance.....		191
Annex D (informative) Gas Turbine Nomenclature		197
Annex E (informative) Gas Turbine Combustion.....		199
Annex F (informative) Gas Turbine Inlet Air Filtration		224
Annex G (informative) Gas Turbine Inlet Air Heating and Cooling.....		265
Bibliography		276
Figures		
1	Gas Turbine Rotor Arrangements.....	19
2	Undamped Critical Speed Map.....	32
3	Typical Mode Shapes for Between Bearing Machines	33
4	Typical Mode Shapes for Overhung Machines.....	34
5	Rotor Response Plot	36
6	Plot of Applicable Speed Range of Vibration Limit.....	36
7	API and ISO Balance Grades.....	44
8	Typical Mounting Plate Arrangement A.....	63
9	Typical Mounting Plate Arrangement B	64
10	Mounting Surface Horizontal Requirements.....	65
11	Mounting Plane Parallelism Requirements.....	66
12	Inlet and Exhaust System Pressure Drop Planes	88
13	Stitch Welding of Perforated Plates.....	97
14	Typical Fuel Gas System—Typical Arrangement A	105
15	Typical Fuel Gas System—Typical Arrangement B	106
16	Liquid Fuel System—Typical Arrangement.....	112
17	Performance Curves for a Single-shaft Gas Turbine.....	137
18	Performance Curves for a Multiple-shaft Gas Turbine (Constant Exhaust Temperature).....	137
19	Performance Curves for a Multiple-shaft Gas Turbine (Varying Exhaust Temperature)	138
C.1	Residual Unbalance Worksheet	194
C.2	Sample Residual Unbalance Worksheet for Left Plane (Metric).....	195
C.3	Sample Residual Unbalance Worksheet for Right Plane (USC)	196
D.	Industrial Gas Turbine Nomenclature	197
D.2	Three-shaft Aeroderivative Gas Turbine Nomenclature.....	198
D.3	Two-shaft Aeroderivative Gas Turbine Nomenclature	198
E.1	Schematic of Gas Turbine and Flows.....	199
E.2	Diagram Showing NO _x and CO Production with Flame Temperature.....	201
E.3	Annular Combustor	203

E.4	Diffusion Combustor	204
E.5	Conventional Combustor FAR Range	204
E.6	Typical Fuel Injector	206
E.7	DLE Combustor	208
E.8	Serial Staged DLE Combustor	208
E.9	Parallel Staged DLE Combustor	209
E.10	DLE Combustion FAR Range	209
F.1	Location of Gas Turbine Inlet Air Filtration System	224
F.2	Distribution of Particles in Atmosphere	225
F.3	Gas Turbine Damage from FOD	226
F.4	Typical Particle Size Distribution for Erosion and Fouling Range	226
F.5	Erosion on the Leading Edge of a Turbine Blade	227
F.6	Effect of Cleaning on the Efficiency of a Gas Turbine	228
F.7	Fouling on Compressor Blade	228
F.8	Corrosion/Pitting on a Compressor Blade	229
F.9	Examples of Hot Corrosion Failures	230
F.10	Combination of Filtration Mechanisms to Obtain Filter Efficiency at Various Particle Sizes	233
F.11	Example of Data from an EN 1822 Test (MPPS is 0.16 microns)	234
F.12	Typical Effect of Pressure Loss at Inlet on Gas Turbine Power and Heat Rate	236
F.13	Example of CFD Analysis in Inlet Air Filtration System	237
F.14	Comparison of High and Low Specific Dust Holding Capacity Filters	237
F.15	Static Filtration System Configurations	239
F.16	Self-cleaning Filtration System Configurations	239
F.17	How Sea Salt Particle Size Varies with Relative Humidity	241
F.18	Weather Hood on Inlet Air Filtration System	244
F.19	Horizontal Cartridge Filters with Frost Buildup Due to Cooling Tower Drift	245
F.20	Vane Axial Separators	246
F.21	Coalescer Droplet Formation Distribution	246
F.22	Electrostatic Charge Filter	247
F.23	Comparison of Fiber Structure for Low- and High-efficiency Filters	248
F.24	Construction of Rectangular Pleated High-efficiency Filter	248
F.25	Rectangular High-efficiency Filter	249
F.26	High-efficiency Self-cleaning Cartridge Filters	249
F.27	Example of Operation of Updraft Self-cleaning Filters	250
F.28	Example of Pressure Loss Curve Over Time on a Self-cleaning Filter	251
F.29	Multistage Filtration System	252
F.30	Examples of Inlet Air Filtration System Arrangements for Offshore Gas Turbine	252
F.31	Example of Poor Placement of Inlet to Filtration System	254
F.32	Pressure Loss of Different Filters in Various Environments	255
F.33	Areas of the World that have High Dust Concentration	258
F.34	Texas Haboob	259
F.35	Bag Filter and Turbine Blade at Soda Ash Plant	263
G.1	Typical Gas Turbine Inlet Temperature vs. Output Power and Heat Rate	265
G.2	Common Arrangements for Gas Turbine Inlet Evaporative Cooling	267
G.3	Typical Fogging Nozzle	268
G.4	Inlet Fogging Distribution Manifold	269
G.5	Typical High-pressure Fogging Skid	269
Tables		
1	Vibration Limits According to ISO 20816-4	46
2	Required Trips and Recommended Alarms and Shutdowns	75
3	Minimum Piping Materials	85
4	Typical Fuel Gas System Components	106
5	Typical Liquid Fuel System Components	112
6	Maximum Allowable Free Air Gauss Levels	120
C.1	Trial Weight Multiplier vs. N_{mc}	192

E.1	Fuel Composition, Pipeline, and Backup	217
E.2	Other Fuels, Composition, WI, and LHV	218
F.1	Common Contaminants and Appropriate Rated Filter	232
F.2	Classification of Filters Based on American and European Standards	235
F.3	Different Types of Moisture Experience in Inlet Air Filtration Systems.....	240
G.1	Operational Concerns with Evaporative Cooling Systems	270

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Gas Turbines for the Petroleum, Chemical, and Gas Industry Services

1 Scope

1.1 General

This standard covers the minimum requirements for open-, simple-, and regenerative-cycle combustion gas turbine units for services of mechanical drive, generator drive, or process gas generation. All auxiliary equipment required for operating, starting, controlling, and protecting gas turbine units is either discussed directly in this standard or referred to in this standard through references to other publications. Specifically, gas turbine units that are capable of firing gas or liquid or both are covered by this standard. This standard covers both industrial and aeroderivative gas turbines.

A bullet (●) at the beginning of a paragraph indicates that either a decision is required or further information is to be provided by the purchaser. The information should be indicated on the datasheets (see Annex A); otherwise, it should be stated in the quotation request or in the order.

1.2 Alternative Designs

Vendor may offer alternative designs.

1.3 Conflicts

In case of conflicts between this standard and the inquiry, the information in the inquiry shall govern. At time of order, the order shall govern.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

API Manual of Petroleum Measurement Standards (MPMS) Chapter 15:2001, *Guidelines for Use of the International System of Units (SI) in the Petroleum and Allied Industries*

API Recommended Practice 500, *Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Division 1 and Division 2*

API Recommended Practice 505, *Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Zone 0, Zone 1, and Zone 2*

API Standard 546, *Form-wound Squirrel Cage Induction Motors—375 kW (500 Horsepower) and Larger*

API Standard 546, *Brushless Synchronous Machines—500 kVA and Larger*

API Standard 547, *General-purpose Form-wound Squirrel Cage Induction Motors—185 kW (250 hp) through 2240 kW (3000 hp)*

API Recommended Practice 551, *Process Measurement*

API Standard 611, *General-purpose Steam Turbines for Petroleum, Chemical, and Gas Industry Services*

API Standard 612, *Petroleum, Petrochemical, and Natural Gas Industries—Steam Turbines—Special-purpose Applications*

API Standard 613, *Special Purpose Gear Units for Petroleum, Chemical and Gas Industry Services*