

ICS 27.040
CCS K 56



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 14099.2-2026

Replacing GB/T 14099-2005

**Gas turbines - Procurement - Part 2: Standard reference
conditions and ratings**

燃气轮机 采购 第2部分：标准参考条件与额定值
(English Translation)

Issued on: May 25, 2026

Implemented on: December 1, 2026

Issued by: State Administration for Market Regulation

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 2 of GB/T 14099 "Gas Turbine Procurement". GB/T 14099 has already published the following parts.

- Part 2: Standard Reference Conditions and Ratings;
- Part 3: Design Requirements;
- Part 4: Fuels and the Environment;
- Part 5: Applications in the Oil and Gas Industry;
- Part 7: Technical Information;
- Part 8: Inspection, Testing, Installation and Commissioning;

---Part 9: Reliability, Availability, Maintainability and Security.

This document partially replaces GB/T 14099-2005 "Gas Turbine Procurement". Compared with GB/T 14099-2005, the main differences are in structural adjustments.

Aside from editorial changes, the main technical changes are as follows.

---A general rule has been added (see 4.1);

---The hydrogen (100% H₂) fuel type has been added (see 5.1.2);

---Added specifications for power ratings (see 5.2);

---The provisions regarding job type and start-up frequency levels have been deleted (see sections 6.2.1 and 6.2.2 of GB/T 14099-2005);

---The criteria for determining the field ratings of mechanical drive units have been changed (see 5.4, 6.4 of GB/T 14099-2005).

This document is equivalent to ISO 3977-2:2023 "Gas turbine procurement - Part 2: Standard reference conditions and ratings".

The following minimal editorial changes have been made to this document.

---Corrections have been made to the content of International Standard 5.4 and the chapter and clause numbers of the referenced standards.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Machinery Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Standardization of Gas Turbines (SAC/TC259).

Introduction

GB/T 14099 "Gas Turbine Procurement" aims to clarify the requirements for procuring gas turbines, including combined cycle systems and their auxiliary equipment.

Technical information. GB/T 14099 is proposed to consist of the following parts.

---Part 1: General Provisions and Definitions. This section aims to define the terms and definitions relevant to the procurement of gas turbines.

---Part 2: Standard Reference Conditions and Ratings. The purpose is to specify the standard reference conditions and ISO standard ratings for gas turbines.

A constant value.

---Part 3: Design Requirements. The purpose is to specify the design requirements for the

gas turbines and auxiliary equipment to be procured, providing a basis for the procurement process.

Related technical information support.

---Part 4: Fuel and Environment. The purpose is to establish guidelines and provisions regarding fuel quality and environmental requirements in gas turbine procurement.

Required information.

---Part 5: Applications in the Oil and Gas Industry. The aim is to provide information on gas turbine applications in the oil and gas industry.

Provide guidance on design, materials, manufacturing, inspection, testing, and transportation preparation.

---Part 7: Technical Information. The purpose is to clarify the delivery requirements for technical documentation during the gas turbine procurement process.

---Part 8: Inspection, Testing, Installation and Commissioning. The purpose is to provide inspection, testing, and installation services for gas turbines and their complete systems.

And guidance on debugging.

---Part 9: Reliability, Availability, and Maintainability. The purpose is to specify the reliability, availability, and maintainability of gas turbines.

The content facilitates communication and exchange among gas turbine manufacturers, users, consulting firms, regulatory authorities, insurance companies, and other entities.

It provides information on the reliability, availability, and maintainability of gas turbines.

The formulation of this document can standardize the procurement process of gas turbines and ensure the performance and quality of gas turbines.

Gas turbine procurement Part 2: Standard Reference Conditions and Ratings

1 Scope

This document specifies the standard reference conditions and ISO standard ratings for gas turbines.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 14100-2016 Gas turbine acceptance tests (ISO 2314:2009, IDT)

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.

4.1 General Rules

The standard reference conditions upon which ISO power, efficiency, heat rate and fuel consumption rate are based shall be performed in accordance with the provisions of 4.2 to 4.5.

The standard reference conditions shall comply with the provisions of 3.9 in GB/T 14100-2016.

4.2 Air intake conditions

The air intake conditions at the gas turbine compressor inlet flange (or compressor inlet bell) should be as follows.

---Total pressure 101.325 kPa;

---Total temperature 15°C;

---Relative humidity 60%.

4.3 Exhaust conditions

At the turbine exhaust flange (or at the regenerator outlet if a regenerative cycle is used), the exhaust static pressure is 101.325 kPa.

4.4 Cooling water conditions (if applicable)

If the working fluid is to be cooled, the inlet temperature of the water should be 15°C.

4.5 Heater or cooler for the working fluid

For heaters or coolers using ambient air, the standard reference conditions for ambient air should be 15°C and 101.325 kPa.