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

**GB/T 14100-2016**

Replacing GB/T 14100-2009

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**Gas turbines -- Acceptance tests  
(English Translation)**

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## Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 14100-2009 "Gas Turbine Acceptance Test", compared with GB/T 14100-2009, the main technology changes as follows.

- to remove the steam turbine thermal performance acceptance test procedures;
- the contents of the protective device test have been removed;
- Removes the relevant contents of the test, such as regulating the system, handling characteristics, vibration, emissions and noise;
- the acceptance of the acceptance test in 3 months to implement the provisions;
- Increased uncertainty calculation method (see Appendix A);
- an example of an increase in the exhaust mass flow rate and the turbine inlet temperature energy balance calculation (see Appendix B);
- modified the maximum permissible range of operating conditions;
- The maximum permissible uncertainty of the measuring instrument, device or parameter is modified.

This standard uses the translation method equivalent to ISO 2314.:2009 "gas turbine acceptance test".

See Appendix NA for our documents in accordance with the normative correspondence between the normative references in this standard.

This standard is proposed by the China Machinery Industry Federation.

This standard is under the jurisdiction of the National Gas Turbine Standardization Technical Committee (SAC/TC259).

The drafting of this standard. Nanjing Gas Turbine Research Institute, Xi'an Thermal Engineering Research Institute Co., Ltd., Kazakhstan Electric Group (Qinhuangdao) heavy equipment Limited liability company, China Aviation Industry Shenyang Liming Aeroengine (Group) Co., Ltd., Shenzhen Nanshan Thermal Power Co., Ltd., Shanghai Electric Power Station Equipment Co., Ltd. Shanghai Steam Turbine Factory.

## Introduction

This standard specifies guidelines and procedures for the purpose of determining and/or verifying the gas, for the preparation, implementation and reporting of thermal performance acceptance tests.

The power, mechanical power, thermal efficiency (heat rate) of the power plant and the gas turbine engine (this standard will be referred to as "gas turbine"), Turbine exhaust energy and/or other performance parameters. Measurement techniques and methods should use the best engineering knowledge and industry practices to ensure performance testing the results have a high degree of accuracy.

The performance test executive may, in accordance with the recommendations and

guidelines of this standard, take into account the contractual obligations, prepare specific projects or specific tests A detailed test procedure for the equipment. Any differences from this standard shall be subject to the unanimous consent of the relevant parties prior to the commencement of the test.

## Gas Turbine Acceptance Test

### 1 Scope

This standard applies to open-cycle gas turbine power units using gaseous and/or liquid fuel combustion systems, as well as closed cycles and semi-closed cycle gas turbine power plant. And is suitable for use in a gas turbine in a combined cycle power plant or with other heat recovery systems Even the gas turbine.

This standard is available for gas turbines with a free piston gas generator or a special heat source (eg chemical process synthesis gas, blast furnace gas) Basis, but need to be properly modified.

This standard applies equally to acceptance tests for gas turbines with emission control and/or power boosting devices, Into and/or intake processing, and if the scope of the supply contract for which the test is to be carried out includes such systems, the test procedure shall take these system.

According to the purpose of the test, the comparison test will have many different situations. This standard can also be used to verify the performance comparison of gas turbine performance Inspection, mainly for the transformation, upgrading or overhaul before and after the test, but no special mention of these elements.

This standard also includes the determination of the following performance parameters and correction to the reference conditions.

- a) electric power or mechanical power (exhaust power, if only supply gas);
- b) thermal efficiency or heat rate;
- c) Turbine exhaust energy (available for exhaust temperature and flow).

All other performance parameters specified by the equipment supplier and the purchaser in the contract shall be specified in the specific test procedure and the supplier standard Make the appropriate consideration in the test procedure.

This standard specifies the preparation and execution of the gas turbine performance test, describes the measurement method, the associated instrument and its calibration, defines the gas Turbine operating conditions, boundary conditions and their limits, and standard conditions (3.9). If no other conditions are found at the time of purchase, the standard conditions shall be applied Used as a reference condition. This standard also includes measurement data processing and processing, test results calculation and correction, and