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

GB/T 40739-2021

**Gas turbines - Data acquisition and trend monitoring system
requirements for gas turbine installations**

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Foreword

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

Drafting.

The translation method used in this document is equivalent to ISO 19860.2005 "Gas Turbine Gas Turbine Equipment Data Acquisition and Trend Monitoring System"

System Requirements."

The Chinese documents that have consistent correspondence with the normatively cited international documents in this document are as follows.

---GB/T 14100-2016 Gas turbine acceptance test (ISO 2314.2009, IDT).

This document has made the following editorial changes.

---Delete the year numbers of ISO 2314.1989 and ISO 3977-2.1997 in the list of normative references in Chapter 2, because the text

All quoted without date;

--- Deleted ISO 13373-1.2002 in the list of normative references in Chapter 2, because it is cited as an information in the text;

--- Deleted the first paragraph of background introduction in 4.1;

---Added the table number in Appendix B.

This document was proposed by China Machinery Industry Federation.

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

Drafting organizations of this document. Shanghai Xinhua Control Technology Group Technology Co., Ltd., Tsinghua University, Nanjing Gas Turbine Research Institute, Hangzhou Steam Turbine

Engine Co., Ltd., Shanghai Electric Gas Turbine Co., Ltd., Hangzhou Huadian Banshan Power Generation Co., Ltd.

Introduction

The issuing agency of this document draws attention to the fact that the declaration of compliance with this document may involve the data processing system and diagnostic system of the power plant.

Regarding the use of patents.

The specific patents declared include.

EP0643345 Data processing device for monitoring the operating status of technical equipment

US5,625,574 Method and data processing system for monitoring the operating state of technical equipment

EP0667013 Unit Diagnostic System

US5,734,567 Unit Diagnostic System

KR299811 Unit Diagnostic System

IN179026 Power Plant Diagnostic System

This document does not hold any position on the certification, validity and scope of patent rights.

The issuing agency of this document has no position on the authenticity, validity and scope of the above-mentioned patents.

The patent right holder has promised to ISO that he is willing to authorize the patent with any applicant under reasonable and non-discriminatory terms and conditions.

Permission to negotiate. The statement of the patent holder has been filed with ISO. Relevant information can be obtained through the following contact methods.

Name of patent holder. Siemens

Address. Erlangen, Germany

After inquiries, the above patents that belong to Siemens involved in the standard are currently in an invalid state.

Please note that in addition to the above-mentioned patents, certain contents of this document may still involve patents. The issuing agency of this document is not responsible for identifying patents

responsibility.

More and more users of gas turbines require a trend monitoring system (TMS) with various functions on the gas turbines they purchase.

The use of TMS can improve the cost-effectiveness of the project and improve the future operation of the unit. These benefits entice users to exchange cash based on TMS

There are equipment modifications to improve the cost-effectiveness and reliability of the unit, and reduce maintenance intervals and downtime risks. The complexity of TMS can

It is determined by quoting the relevant chapters of this document.

TMS can also bring the following benefits.

---Investigate the cause of the downtime;

---Analyze the actual situation in order to prepare for maintenance in advance if necessary.

It can be foreseen from the development trend of gas turbines in recent years that it is impossible to sell gas turbines without TMS in the future, and there is a kind of

The trend of closely integrating TMS with the control system of a gas turbine.

On the one hand, the operating data in the control system is required in the TMS system, and on the other hand, the control system can quickly respond to TMS detection

Emergency. The direct combination of the two systems can provide the best solution.

There are many independent and integrated systems on the market, but they are designed based on different concepts. Correspondingly, their performance will also have

The difference. The meanings of certain terms are often contradictory and may mislead the staff.

TMS has advantages in the following aspects.

- Reduce fuel consumption;
- Optimize maintenance costs according to actual needs (such as availability);
- Minimize the impact on the environment;
- Predict the possible failures and reduce the damage or loss they may cause;
- Improve reliability and availability.

Using a unified system allows manufacturers to.

- Determine actual (not theoretical) thermodynamic data;
- Verify data and performance;
- Determine the aging of the gas turbine;
- Improve the service interval plan;
- Optimize compressor cleaning.

Operators and manufacturers can work together.

- Analyze established short-term and long-term trends;
- Conduct status analysis;
- Identify and reduce potential failures.

So that the future automatic diagnosis system can be further expanded.

With the emergence of more and more new systems, the classification and definition of technical terms have become more important. The purpose of this document is to monitor trends

The measurement system establishes certain guidelines in order to provide a basis for comparing the characteristics and performance of various systems, and to provide necessary information in the decision-making process.

help.

Gas Turbine Gas Turbine Equipment Data Collection and

Trend monitoring system requirements