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

GB/T 38180-2019

Microturbines applications - Safety

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Foreword

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

The translation method used in this standard is equivalent to ISO 19372..2015 "Miniature Gas Turbine Application Safety".

Chinese documents that have a corresponding correspondence with the international documents referenced normatively in this standard are shown in Appendix NA.

For ease of use, the following editorial changes have been made to this standard.

--- Errata on 5.21.3.1, delete references to IEC 13463-1;

--- Informative appendix NA added.

This standard is proposed by China Machinery Industry Federation.

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

This standard was drafted. Xi'an Jiaotong University, Nanjing Gas Turbine Research Institute, Institute of Engineering Thermophysics, Chinese Academy of Sciences, Hefei Micro

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Introduction

This standard is a Class C standard in GB/T 15706. The Class C standard is "the safety requirements of a specific mechanical device or group of mechanical devices.

Seeking detailed standards. "

This standard gives the hazards involved in the relevant mechanical devices, the possible dangerous situations and the extent to which they occur.

When the provisions of this standard differ from those of Class A or B standards, for mechanical devices designed and manufactured in accordance with the provisions of Class C standards, this

The provisions of the standard take precedence over the provisions of other standards.

The scope of application of specific normative references given in this standard may be limited by the context of the text in this standard. If a note is specified

The date of the standard, the new version can be used, provided that the safety issues and identified dangers given in this standard are met. If in standard

A specific clause is referenced in the text, only the text of that clause and its references apply. The references in the notes are provisions of this standard, but are not normative

These provisions are listed in the references.

In addition to the relevant safety requirements, this standard also provides designers, manufacturers and others with compliance with the following new European directives

The prescribed method for the application of safety requirements for micro gas turbines, and does not affect the application of this standard outside the European Union.

- Machine Directive (2006/42/EC);
- ATEX (device) directive (94/9/EC);
- Pressure Device Directive (97/23/EC);
- Low Voltage Directive (2006/95/EC);
- Electromagnetic Compatibility Directive (2006/95/EC).

In addition, this standard provides the following basic safety requirements related to the European Directive so far.

- Comprehensive pollutant prevention and control directive (96/61/3C);
- Environmental Noise Directive (2002/49/EC);
- Chemical reagents directive (98/24/EC);
- Directive on the Classification, Packaging and Labelling of Dangerous Substances (1999/61/EC);
- Physical factors (noise) risks to staff (2003/10/EC).

Note. When this standard was issued, it referred to the currently used European directive,

but it was subject to other basic safety requirements due to possible updates.

Micro gas turbine application safety

1 Scope

This standard applies to automated, fixed miniatures equipped in industrial, commercial or residential, as independent power generation systems or their subsystems.

Safety requirements for gas turbine generators. Covered output voltage is AC not exceeding 1kV or DC not exceeding 1.5kV, stand-alone power

500kW and below, using liquid or gas fuel, installed or used in conventional or dangerous locations, including floating production platforms, etc.

For marine and land use, involving all cycle types such as open cycle, closed cycle and semi-closed cycle (simple, combined, regenerative, reheat, etc.)

Micro gas turbines, and their control and detection systems, related auxiliary equipment, etc.

This standard applies to transmission machinery (such as gearboxes) directly connected to micro gas turbines; or

A part of the hazardous area of the miniature gas turbine chassis (such as a generator located in the cabinet); or the safe operation of the miniature gas turbine

Directly affected drives. This standard specifies the anticipated significant hazards associated with micro gas turbines and states that reducing and eliminating

These dangerous and reasonable methods and processes put forward the risks to human casualties and the environment, excluding devices that are not harmful to people and the environment

Destruction.

Miniature gas turbine casings are usually specified by international or national standards, which can be further enhanced by the use of additional safety regulations and standards.

To further improve safety, these safety codes and standards are also used in micro gas turbines using other technologies.

Note. It should be noted that this standard may not include local regulations in the country where the equipment is installed.

This standard is based on the existing and recognized ISO and IEC standards to the greatest extent, and proposes the safety requirements of micro gas turbines.

When there is no ISO or IEC standard, other specifications or standards are implemented (such as EN, NFPA, etc.). If local or national regulations accept other

Norms or standards, or alternative international or national standards that specify equivalent risk level requirements, these alternative norms or standards can be used in place of

Normative references in Chapter 2.

This standard does not apply to direct or indirect propulsion applications, special heat source applications, and micro gas turbines in the research and development stage.

Mini gas turbines in compressed air energy storage power stations. This standard may be used to give general guidance on these devices where appropriate.

This standard does not apply to equipment or safety components manufactured before its publication as a standard.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this article

Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB/T 3836.16-2017 Explosive atmospheres Part 16. Inspection and maintenance of electrical installations (IEC 60079-17:2007,

IDT)

GB/T 15706-2012 General rules for safety design of machinery for risk assessment and risk reduction (ISO 12100:2010, IDT)

ISO 3864-3 Graphical symbols-Safety colours and safety signs-Part 3. Design principles for graphical symbols for safety signs (Graphical

symbols-Safety colours and safety signs-Part 3. Design principles for graphical symbols for use in safety signs)

ISO 3977-1:1997 Gas Turbine Procurement Part 1. General and Definitions
(Gas turbines-Procurement-

Part 1. General introduction and definitions)

ISO 3977-3 Gas Turbine Procurement Part 3. Design Requirements
(Gas turbines-Procurement-Part 3. Design

requirements)