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

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**Heavy casting and forging for heavy-duty gas turbine - Part 3:
Steel castings**

重型燃气轮机用大型铸锻件 第3部分：铸钢件

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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 for standardization documents" Drafting.

This document is Part 3 of GB/T 45981 "Large Castings and Forgings for Heavy-Duty Gas Turbines". GB/T 45981 has been published for the following part.

- Part 1: Steel open die forgings;
- Part 2: High temperature alloy die forgings;
- Part 3: Steel castings.

Please note that some of the contents of this document may involve patents. The issuing

organization of this document does not assume the 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 for Standardization of Large Castings and Forgings (SAC/TC506).

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Introduction

Heavy-duty gas turbines are the core power equipment of energy efficient conversion and clean utilization systems and are widely used in power generation, distributed energy and electricity.

Heavy-duty gas turbine castings and forgings are the most important products of heavy-duty gas turbines.

The development foundation of the industry, with the development of heavy-duty gas turbine industry, its castings and forgings have made breakthroughs and formed a series of material systems.

To promote common benefits, it is necessary to propose material selection, ordering, manufacturing, testing methods and inspection rules for large castings and forgings used in heavy-duty gas turbines.

GB/T 45981 "Large Castings and Forgings for Heavy-Duty Gas Turbines" was formulated for this purpose.

Provide a basis for manufacturing and technical exchanges, and cultivate and enhance the material supporting capabilities of the heavy-duty gas turbine industry.

Due to the differences in materials, manufacturing and supply chains of components, GB/T 45981 is intended to consist of three parts.

- Part 1: Steel free forgings. The purpose is to standardize the shaft head, center tie rod, compressor and turbine wheel for heavy-duty gas turbines Manufacturing of large steel free

forgings.

- Part 2: High-temperature alloy die forgings. The purpose is to standardize high-temperature alloy large die forgings and tie rod forgings for heavy-duty gas turbines Manufacturing of parts.

- Part 3: Steel castings. The purpose is to standardize heavy-duty gas turbines gravity cast using sand molds or molds with thermal conductivity equivalent to sand molds Used in the manufacture of large steel castings.

Large castings and forgings for heavy-duty gas turbines Part 3: Steel castings

1 Scope

This document specifies the ordering requirements, manufacturing process, and technical requirements for large steel castings for heavy-duty gas turbines, and describes the corresponding test methods.

The law stipulates inspection rules, acceptance and quality certificates, labeling and packaging.

This document applies to the manufacture of large steel castings for heavy-duty gas turbines using gravity casting using sand molds or molds with thermal conductivity equivalent to sand molds.

2 Normative references

GB/T 222

GB/T 223.3

GB/T 223.5

GB/T 223.9

GB/T 223.11

GB/T 223.14

GB/T 223.18

GB/T 223.19

GB/T 223.23

GB/T 223.26

GB/T 223.28

GB/T 223.31