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PEOPLE'S REPUBLIC OF CHINA**

GB/T 45164-2024

**Classification and designation of defects in investment
castings**

熔模铸件缺陷分类及命名

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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. Some contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document is proposed and coordinated by the National Casting Standardization Technical Committee (SAC/TC54). This document was drafted by: Wuxi Xuelang Alloy Technology Co., Ltd., Shanghai Wanze Precision Casting Co., Ltd., Huizhou Jibang Precision Technology Co., Ltd., Suzhou Taier Aviation Materials Co., Ltd., Jiashan Jinyi Precision Casting Co., Ltd., Guizhou Anji Aviation Precision Casting Co., Ltd. Ren Company, Jiashan Xinhai Precision Casting Co., Ltd., Dongfeng Precision Casting Co., Ltd., China Machinery Engineering Institute Group Shenyang Foundry Research Institute Co., Ltd. Company, Hunan Baoyue New Material Technology Co., Ltd., China Aerospace South Industry Co., Ltd., Jiangsu Zhongchao Hangyu Precision Casting Technology Co., Ltd., Ningbo Baisai Power Technology Co., Ltd., Shijiazhuang Shenghua Enterprise Group Co., Ltd., Zhejiang Suijin Special Casting Co., Ltd., Ruian San Xing Anti-corrosion Casting Co., Ltd., Shandong Heavy Equipment Testing Technology Co., Ltd., Chengdu Zhengheng Power Co., Ltd., Northwestern Polytechnical University, Shanghai Jiaotong University, Qingdao University of Science and Technology, Shenyang University of Technology, Yantai Vocational College, Shandong Dazhong Machinery Manufacturing Co., Ltd., Harbin Xinrun Industrial Co., Ltd., Jiangsu Hongyang Quanyue Machinery Manufacturing Co., Ltd., Hubei Gucheng County Donghua Machinery Co., Ltd., Ganzhou Zhiyue Machinery Co., Ltd. Co., Ltd., Qingdao Xinlitong Industrial Co., Ltd., Guangdong Wencan Die Casting Technology Co., Ltd., Shanxi Ruige Metal New Materials Co., Ltd., Changzhou Kaiting Precision Machinery Co., Ltd., Huaxia Railway Equipment Co., Ltd., Ningbo Haiwei Auto Parts Co., Ltd., Shanghai Aerospace Precision Mechanical Research Institute, Qingyun Shida Metal Products Co.,

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1 Scope

GB/T 45164-2024 classifies and names the defects of investment castings. It is a vocabulary standard with a very practical purpose: an investment foundry and its customer argue about defects constantly, and the argument is unresolvable if the same feature is called a shrinkage cavity by one and a gas hole by the other, or if a rejection report names a defect that the foundry's process engineers do not recognise. The standard sets a defect coding scheme with its structure and coding rules, so that every defect has an identifier as well as a name, and then the classification itself, grouping the defects by type and giving for each one its name and a description of its characteristics, the features by which it is recognised and distinguished from the defects it resembles. Investment casting has its own defect population, shell-related inclusions, wax pattern defects, defects from the burnout and preheat, that a general casting defect standard does not cover well, which is why this document exists separately. It takes effect on 1 July 2025.

This document provides the coding rules, coding structure, defect classification, defect name and defect characteristic description of investment casting defects. This document is applicable to the classification and naming of common defects in castings produced by the investment casting process.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 5611 Casting Terminology

3 Terms and definitions

The terms and definitions defined in GB/T 5611 apply to this document.

4.1 Defect Coding Rules

4.1.1 Casting defects are classified by line classification method, and defect coding adopts four-level coding method. Casting defects are divided into four levels, namely, major category, group, sub-category, and Groups and specific defects.

---The major defect code is represented by a single Latin letter;

--- The group defect code in the major category consists of