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

GB/T 13821-2023

Replacing GB/T 13821-2009

Zinc alloy die castings

锌合金压铸件

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Table of Contents

1 Scope
2 Normative references
3 Terms and definitions...
4 Classification and grading of zinc alloy die castings...
5 Technical requirements...
5.6 Internal quality
6 Test methods
6.1 Chemical composition
6.2 Mechanical properties
6.3 Dimensions
6.5 Surface quality
7 Inspection rules
7.1 Inspection items
8 Delivery, marking, packaging, transportation, and storage
8.1 Delivery
8.2 Marking

1 Scope

GB/T 13821-2023 is the Chinese national standard on zinc alloy die castings, in the field of metallurgy. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 23 May 2023 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 23 May 2023. Classification: ICS 77.120.60, CCS J31. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the classification and grading, technical requirements, test methods, inspection rules, delivery, marking, packaging, transportation, and storage of zinc alloy die castings. This document applies to the manufacturing and quality inspection of zinc alloy die castings.

2 Normative references

The contents of the following documents, through normative references in this text, constitute indispensable provisions of this document. Among them, for dated references, only the edition corresponding to that date applies to this document. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 228.1 Metallic materials - Tensile testing - Part 1: Method of test at room temperature

GB/T 231.1 Metallic materials - Brinell hardness test - Part 1: Test method

GB/T 1182 Geometrical product specifications (GPS) - Geometrical tolerancing - Tolerances of form, orientation, location and run-out

GB/T 1958 Geometrical Product Specifications (GPS) - Geometrical tolerance - Verification

GB/T 2828.1 Sampling procedures for inspection by attributes - Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection

GB/T 2829 Sampling procedures and tables for periodic inspection by attributes (apply to inspection of process stability)

GB/T 3177 Geometrical product specifications (GPS) - Inspection of plain workpiece sizes

GB/T 5611 Foundry terminology

GB/T 5678 Sampling methods of spectrochemical analysis for cast alloys

GB/T 6414 Castings - Dimensional tolerances and geometrical tolerances and

5.5.1 The surface roughness of zinc alloy die castings shall comply with the drawings or the requirements of the demand side.

5.5.2 Zinc alloy die castings shall not have cracks, under-casting, and any penetrating defects.

5.5.3 Zinc alloy die castings are allowed to have defects such as holes, cold shuts, surface defects, and imperfections. Refer to Appendix B for defect classification requirements. Other defects in zinc alloy die castings shall comply with the requirements of the drawings.

5.6 Internal quality

5.6.1 Internal defects such as pores, inclusions, shrinkage cavities, and porosity in zinc alloy die castings shall comply with the requirements of the drawings. If the requirements for use can be met, defects such as pores and shrinkage cavities in the die castings shall not be used as a basis for scrapping.

5.6.2 Under the condition of not affecting the use of die castings, with the consent of the demand side, the supply side can perform infiltration, repair, and deformation correction

treatment on zinc alloy die castings.

6.1 Chemical composition

6.1.1 The inspection methods for the chemical composition of zinc alloy die castings shall be in accordance with GB/T 12689.1, GB/T 12689.3, GB/T 12689.4, GB/T 12689.5, GB/T 12689.6, GB/T 12689.7, GB/T 12689.10, GB/T 12689.12, or GB/T 26042.

6.1.2 When there is a dispute over the analysis results, arbitration shall be conducted in accordance with GB/T 12689.1, GB/T 12689.3, GB/T 12689.4, GB/T 12689.5, GB/T 12689.6, GB/T 12689.7, and GB/T 12689.10.

6.2 Mechanical properties

6.2.1 The tensile test of zinc alloy die castings shall be carried out in accordance with the provisions of GB/T 228.1.

6.2.2 The hardness test of zinc alloy die castings shall be carried out in accordance with the provisions of GB/T 231.1.

6.2.3 When zinc alloy die castings require body inspection, the sampling location, specimen size, and test method shall be agreed upon by both the supply and the demand sides.

6.3 Dimensions

6.3.1 The geometrical dimension inspection of zinc alloy die castings shall be carried out in accordance with the provisions of GB/T 3177 and GB/T 34634.

6.3.2 The geometrical tolerance inspection of zinc alloy die castings shall be carried out in accordance with the provisions of GB/T 1958.

6.3.3 It shall use general or special measuring tools that meet the accuracy for inspection.

6.4 Mass The mass inspection of zinc alloy die castings shall be carried out in accordance with the provisions of GB/T 11351.

6.5 Surface quality

6.5.1 The roughness rating of the non-machined surface of zinc alloy die castings shall be carried out in accordance with the provisions of GB/T 15056.

6.5.2 The inspection method for surface roughness of zinc alloy die castings shall be carried out in accordance with the provisions of GB/T 10610.

6.5.3 The surface quality of zinc alloy die castings shall be tested visually or by other appropriate methods.

6.6 Internal quality The internal quality inspection of zinc alloy die castings shall be carried

out in accordance with the provisions of GB/T 35388, GB/T 36589, or GB/T 39638.

7.1 Inspection items

7.4.2 During the inspection of mechanical properties, there are 3 specimens for each group. If 2 of the 3 specimens tested fail to meet the mechanical properties, the lot will be determined as nonconformity. It is allowed to double the number of specimens for the second inspection. If 2 specimens fail in the second inspection, but the overall average value is qualified, the lot will be determined as conformity. If there are more than 2 nonconformity specimens, the lot will be determined as nonconformity.

7.4.3 If the dimensions of any product under sampling inspection fail, the lot will be determined as nonconformity.

7.4.4 If the mass of any product under sampling inspection fails, the lot will be determined as nonconformity.

7.4.5 If the surface quality of any product under sampling inspection fails, the lot will be determined as nonconformity.

7.4.6 If the internal quality of any product under sampling inspection fails, the lot will be determined as nonconformity.

8.1 Delivery

8.1.1 When required in the contract or agreement, the supply side shall submit the inspection report to the demand side.

8.1.2 Zinc alloy die castings shall be delivered with an inspection certificate.

8.2 Marking

8.2.1 Product marking Zinc alloy die castings shall at least have the following marks cast or engraved on the non-machined surface:

- a) Raw material's designation;
- d) Supply side's information, such as trademark or symbol;
- e) Date of production.

8.2.2 Packaging marking The outer packaging of zinc alloy die castings shall at least have the following markings:

- b) Product code or special traceability information;
- c) Packaging quantity;
- d) Supply side's information, such as trademark or symbol;