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

GB/T 15114-2023

Replacing GB/T 15114-2009

Aluminum alloy die castings

铝合金压铸件

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1 Scope

GB/T 15114-2023 is the Chinese national standard on aluminum 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 77.120.10, 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 technical requirements, test methods, inspection rules, as well as delivery, marking, packaging, transportation and storage of aluminum alloy die castings. This document is applicable to the manufacturing and quality inspection of aluminum alloy die castings.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 228.1 Metallic Materials - Tensile Testing - Part

3 Terms and Definitions

What is defined in GB/T 5611, and the following terms and definitions are applicable to this document.

3.1 aluminum alloy die casting Aluminum alloy die casting refers to an aluminum alloy casting produced through the mode of die casting using high-pressure die-casting equipment.

3.2 structural part Structural part refers to the load-bearing part or force-bearing part of aluminum alloy die casting (3.1) that is closely related to safety during use.

3.3 functional part Functional part refers to a component with functional characteristics.

4 Technical Requirements

4.1 Chemical Composition The chemical composition of aluminum alloy die casting shall comply with the stipulations of Table 1.

4.2 Mechanical Properties

4.2.1 The mechanical properties of aluminum alloy die castings are based on the mechanical properties determined on Type A tensile specimens specified in GB/T 13822 as the reference basis for inspection.

4.2.2 The typical mechanical properties determined using Type A tensile specimens specified in GB/T 13822 shall comply with the stipulations of Appendix A.

4.2.3 When it is necessary to use aluminum alloy die casting body for sampling inspection, the requirements for the mechanical properties shall be determined by the demand-side and the supply-side through negotiation.

4.3 Dimensions

4.3.1 The geometrical shapes and dimensions of aluminum alloy die casting shall comply with the stipulations of the casting drawings.

4.3.2 The dimensional tolerances of aluminum alloy die casting shall comply with the stipulations of GB/T 6414. An additional amount shall be added to the dimensional tolerances affected by the parting surface and the movable part of the mold, and shall comply with the stipulations of Appendix B and Appendix C. When there are special stipulations and requirements, they shall be indicated on the drawings.

4.3.5 The machining allowances of aluminum alloy die casting shall comply with the stipulations of GB/T 6414. When there are special stipulations and requirements, the machining allowances shall be indicated on the drawings.

4.4 Mass The selection of mass tolerance grade of aluminum alloy die casting shall comply with the stipulations of Grade MT4 ~ MT7 of GB/T 11351. If there are special stipulations and requirements, they shall be determined by the demand-side and the supply-side through negotiation.

4.5 Surface Quality

4.5.1 The surface roughness of aluminum alloy die casting shall comply with the requirements of the drawings or the demand-side. If there are no requirements, please refer to Appendix E.

4.5.2 Aluminum alloy die casting shall not have cracks and any penetrating defects.

4.5.3 Aluminum alloy die casting is allowed to have defects like scratches, dents, misrun and reticular burrs, etc. The degree and number of defects shall be determined by the demand-side and the supply-side through negotiation.

4.6.2 When there are requirements for the air tightness, hydraulic sealing and internal defects of aluminum alloy die casting, and items not listed in this document, the acceptance standards agreed upon by the demand-side and the supply-side shall be followed.

4.6.3 Aluminum alloy die casting allows infiltration, repair and deformation correction. If there are special requirements, they shall be determined by the demand-side and the supply-side through negotiation.

4.7 Thermal Treatment Process Aluminum alloy die casting can be subject to thermal treatment in accordance with the performance requirements, which shall be determined by the demand-side and the supply-side through negotiation.

5 Test Methods

5.1 Chemical Composition The inspection methods for the chemical composition shall comply with the stipulations of GB/T 7999, GB/T 20975.3, GB/T 20975.4, GB/T 20975.5, GB/T 20975.7, GB/T 20975.8, GB/T 20975.10, GB/T 20975.11, GB/T 20975.12, GB/T 20975.14, GB/T 20975.16 and GB/T 20975.17. Under the condition that the accuracy of analysis is guaranteed, other methods are allowed to be used.

5.2 Mechanical Properties

5.2.1 The tensile test of aluminum alloy die casting shall be carried out in accordance with the stipulations of GB/T 228.1.

5.2.2 The hardness test of aluminum alloy die casting shall be carried out in accordance with the stipulations of GB/T 231.1.

5.2.3 When aluminum alloy die casting requires an inspection of its own body, the sampling location, specimen size and test method shall be determined by the demand-side and the supply-side through negotiation.

5.3 Dimensions

5.3.1 The inspection of geometric dimensions of aluminum alloy die casting shall comply with the stipulations of GB/T 3177.

5.3.2 The inspection of geometric tolerances of aluminum alloy die casting shall comply with the stipulations of GB/T 1958.

5.3.3 Use general or special-purpose measuring instruments that satisfy the accuracy for inspection.

5.4 Mass The inspection of mass of aluminum alloy die casting shall comply with the stipulations of GB/T 11351.

5.5 Surface Quality

5.5.1 The surface quality of aluminum alloy die casting shall adopt visual inspection or other methods.

5.5.2 The surface roughness of aluminum alloy die casting shall be tested using a comparison sample block. The comparison sample block shall comply with the stipulations of GB/T 6060.1 and GB/T 6060.3.

6 Inspection Rules

6.1 Inspection Items The inspection of aluminum alloy die casting is divided into type inspection and exit-factory inspection. The inspection items are shown in Table 4.

6.2 Group Batch Aluminum alloy die castings of the same designation, the same die casting machine, the same set of molds, and the same shift of continuous production are considered to be one batch. Group batch under special circumstances shall be determined by the demand-side and the supply-side through negotiation.

6.3 Sampling The stipulations on the sampling of aluminum alloy die casting are shown in Table 5.