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Multi-way precision die forgings – Quality control criterion

多向精密模锻件 质量控制规范

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1 Scope

This Standard specifies the main control points and requirements for the production process of multi-way precision die forgings (hereinafter referred to as "forgings"), including process design, raw materials, blanking, molds, forging equipment, forging, safety and environmental protection.

This Standard applies to the quality control of multi-way precision die forgings.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the dated version applies to this document. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 8541, Terminology of forging and stamping

GB 13318, General rules for safety and environmental conservation of forging production

GB/T 33879, Mufti-way precision die forgings. General specification

GB/T 35079, Mufti-way precision die forgings. Technological design principle

JB/T 4318.2, Horizontal band sawing machine. Part 2: Testing of the accuracy

3 Terms and definitions

Terms and definitions determined by GB/T 8541 are applicable to this document.

4 Main control points and requirements

4.1 Process design

4.1.1 Multi-way die forging technology is generally applied to forge complex structural forgings which have inner holes and multiple branches or bosses externally.

4.1.2 Forging design shall minimize the surface machining allowance on the premise of satisfying the structural dimensions and mechanical properties of the part. The final forming part and cavity of the forging shall retain sufficient process margin; if necessary, the demander's opinion shall be asked for the design result.

4.1.3 The process design process shall comply with the requirements that are specified in GB/T 35079; process specification (card) shall be prepared to guide the production process. The process specification (card) shall include at least the requirements and control methods for the processes such as cutting, heating, mold, forging, multi-way die-forging hydraulic machine control parameters, post-forging treatment.

4.1.4 For the process design process, numerical simulation technology should be used to optimize the process and process parameters. The forging steps should meet the requirements that are specified in GB/T 35079.

4.1.5 Each stage of the process design shall be reviewed; the design results shall also be reviewed by professionals of design, process, quality, and production; if necessary, demander's opinion shall be asked for the design result.

4.2 Raw material

4.2.1 The raw materials shall have valid quality certification documents that are provided by the manufacturer; the chemical composition, appearance, size, mechanical properties and internal quality of the raw materials shall comply with the process requirements.

4.2.2 The raw materials shall be free of defects such as cracks, crusting, folding or inclusion on the surface.

4.2.3 After the raw materials are delivered to the factory, they shall be re-inspected by the quality inspection department. The items and requirements for re-inspection shall be implemented in accordance with GB/T 33879.

4.2.4 The raw materials shall be stored in sections according to materials, specifications, inspection status, and clearly marked. Materials and furnace batches shall be confirmed before the raw materials are shipped out, so as to prevent mixing.

4.3 Blanking

4.3.1 The raw materials should be sawed and blanked; the blanking shall meet the requirements of GB/T 35079. The precision of the sawing equipment shall meet the requirements of JB/T 4318.2.

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