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Aluminum Alloy Ingots for Casting

铸造铝合金锭

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Aluminum Alloy Ingots for Casting

1 Scope

This Standard specifies the requirements, test methods, inspection rules, marking, packaging, transportation, storage, quality certificate and order (or contract) content of aluminum alloy ingots for casting.

This Standard is applicable to aluminum alloy ingots for aluminum alloy castings (hereinafter referred to as ingot castings).

2 Normative References

The following documents are indispensable to the application of this Standard. In terms of references with a specified date, only versions with a specified date are applicable to this Standard. The latest version (including all the modifications) of references without a specified date is also applicable to this Standard.

GB/T 3246.1 Inspection Method for Structure of Wrought Aluminum and Aluminum Alloy Products - Part 1: Inspection Method for Microstructure

GB/T 7999 Standard Method for Direct Reading Spectrometric Analysis of Aluminum and its Alloys

GB/T 8005.1 Aluminum and Aluminum Alloys - Terms and Definitions - Part 1: Product and Method of Processing and Treatment

GB/T 8170 Rules of Rounding off for Numerical Values & Expression and Judgement of Limiting Values

GB/T 16865 Test Pieces and Method for Tensile Test for Wrought Aluminum and Magnesium Alloys Products

GB/T 17432 Methods for Sampling for Analyzing the Chemical Composition of Wrought Aluminum and Aluminum Alloys

GB/T 20975 Methods for Chemical Analysis of Aluminum and Aluminum Alloys

GB/T 25820 Steel Strip for Packing

GB/T 26492.1 Defects for Wrought Aluminum and Aluminum Alloys Ingots and Products - Part 1: Defects for Ingots

JB/T 7946.3 Metallograph of Cast Aluminum Alloys Cast Aluminum Alloys - Pinhole

supply side and indicated in the order sheet (or contract).

4.5 Fracture Organization

The fracture organization of ingot castings shall be compact; there shall be no slag or slag inclusions.

4.6 Amount of Slag

When the demand side has certain requirements towards the amount of slag in ingot castings, the content shall be negotiated and determined by the demand side and the supply side. Then, the specific grade shall be indicated in the order sheet (or contract). The amount of slag in ingot castings shall not be greater than Grade-2.

4.7 Microstructure

When the demand side has certain requirements towards the microstructure of ingot castings, the content shall be negotiated and determined by the demand side and the supply side and indicated in the order sheet (or contract).

4.8 Appearance Quality

The surface of ingot castings shall be clean; there shall be no mildew or external inclusions. Slight slag, finishing trace and slight crack triggered by pouring shrinkage are allowed to exist.

4.9 Ingot Case and Ingot Weight

There is no unified stipulation in ingot case or ingot weight. The content shall be negotiated and determined by the demand side and the supply side and indicated in the order sheet (or contract). The ingot case and ingot weight shall be convenient for packaging, transportation and application.

5 Test Methods

5.1 Chemical Composition

5.1.1 The method of analyzing chemical composition shall comply with the stipulation in GB/T 20975 or GB/T 7999. The arbitration analysis shall adopt the method stipulated in GB/T 20975. When other methods are adopted for analysis, they shall be negotiated and determined by the demand side and the supply side and indicated in the order sheet (or contract).

5.1.2 The determination of analytical numerical value shall adopt round-off comparison method. The rule of numerical round off shall comply with relevant stipulation in GB/T 8170. The round-off digit shall be consistent with the limit digit stipulated in Table 2.

5.6 Microstructure

The test of microstructure shall comply with the stipulation in GB/T 3246.1.

5.7 Appearance Quality

Appearance quality shall receive visual inspection.

6 Inspection Rules

6.1 Inspection and Acceptance Check

6.1.1 Ingot casting shall be inspected by the supply side's technical department. It shall be guaranteed that product quality complies with this Standard and the stipulation in the order sheet (or contract). In addition, a quality certificate shall be issued.

6.1.2 The demand side shall conduct re-inspection of the received products in accordance with the stipulation in this Standard. When the result of the re-inspection is inconsistent with the stipulation in the order sheet (or contract), the demand side shall propose this to the supply side in the written form. This shall be solved through the negotiation between the demand side and the supply side. In terms of disagreement regarding appearance quality, it shall be proposed within 10 days since the date of reception; in terms of disagreement regarding chemical composition and others, it shall be proposed within 3 months since the date of reception. If arbitration is needed, an organization that is approved by the demand side and the supply side can be authorized. The sampling shall be taken jointly with the demand side.

6.2 Group Batch

Ingot castings shall be submitted for inspection in batches. Each batch shall be constituted of ingot castings of the same nameplate and the same smelting number.

6.3 Weight

Ingot castings shall be weighted by "jin" [[Translator note: 1/2 kilogram](#)].

6.4 Inspection Items

6.4.1 Each batch of products shall receive the test of chemical composition and appearance quality.

6.4.2 Each batch of products shall receive inspection of requested inspection items (such as mechanical properties under room temperature tensile, degree of pinhole, fracture organization, amount of slag and microstructure, etc.) in the order sheet (or contract).

6.5 Sampling

products shall be deemed as qualified; if it is still unqualified, then, this batch of products shall be deemed as unqualified.

6.6.6 When any test piece is unqualified in the inspection of microstructure, take a double number of test pieces and re-inspect. If the inspection result is completely qualified, this batch of products shall be deemed as qualified; if it is still unqualified, then, this batch of products shall be deemed as unqualified.

6.6.7 When any ingot casting is unqualified in appearance quality, the ingot casting shall be deemed as unqualified.

7 Marking, Packaging, Transportation, Storage and Quality Certificate

7.1 Marking

On the surface of ingot casting, manufacturer's logo, nameplate and smelting number shall be clearly marked.

7.2 Packaging, Transportation and Storage

7.2.1 Stacking shall be orderly.

7.2.2 Ingot casting shall be bundled in “#” shape or other forms.

7.2.3 Ingot casting shall be bundled with steel strip or other materials. However, it shall be guaranteed that the bundle will not be loosened.

7.2.4 The steel strip used for bundling shall receive anti-rust treatment on the surface and be selected in accordance with relevant model numbers in GB/T 25820.

7.2.5 Ingot casting shall be stacked, stored and transported in accordance with the nameplate; different nameplates of ingot castings shall not be stacked together. Pay attention to prevent it from rain, moisture and corrosion. Places where ingot castings are stored shall be clean.

7.3 Quality Certificate

Each batch of ingot castings shall be attached with a quality certificate that complies with the requirement in this Standard. It shall indicate:

- a) The name of supplier;
- b) The name of product;
- c) Nameplate;

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