Translated English of Chinese Standard: GB/T26027-2024

www.ChineseStandard.net → Buy True-PDF → Auto-delivery.

Sales@ChineseStandard.net

GB

NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

ICS 77.150.10

CCS H 61

GB/T 26027-2024

Replacing GB/T 26027-2010

High damage tolerance aluminium alloy profiles

高损伤容限铝合金型材

Issued on: April 25, 2024 **Implemented on: November 01, 2024**

Issued by: State Administration for Market Regulation;
Standardization Administration of the People's Republic of China.

Table of Contents

High damage tolerance aluminium alloy profiles

1 Scope

This document specifies the product classification, technical requirements, test methods, product qualification, process control, inspection rules, marking, packaging, transportation, storage and quality certificate and order (or contract) contents of high damage tolerance aluminum alloy profiles.

This document applies to high damage tolerance aluminum alloy profiles (hereinafter referred to as “profiles”).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 3190, Wrought aluminum and aluminum alloy - Chemical composition

GB/T 3199, Wrought aluminium and aluminium alloy products - Packing, marking, transporting and storing

GB/T 3246.1, Inspection method for structure of wrought aluminium and aluminium alloy products - Part 1: Inspection method for microstructure

GB/T 3246.2, Inspection method for structure of wrought aluminum and aluminum alloy products - Part 2: Inspection method for macrostructure

GB/T 3251, Compression test method for aluminium and aluminium alloy products

GB/T 6519-2024, Ultrasonic inspection of wrought aluminium and magnesium alloy products

GB/T 7999, Optical emission spectrometric analysis method of aluminum and aluminum alloys

GB/T 8005.1, Aluminium and aluminium alloy terms and definitions - Part 1: Product and method of processing and treatment

GB/T 12966, The methods for determining aluminium and aluminium alloys conductivity using eddy current

5.7 Ultrasonic flaw detection acceptance grade

The ultrasonic flaw detection results of profiles shall comply with Grade A in GB/T 6519-2024.

5.8 Macro-structure

Cracks, stratification, shrinkage tails, pores, bright grains, metal inclusions, and non-metallic inclusions are not allowed to exist on the macro-structure samples of the profiles. The depth of the coarse grain ring at the corners of the profiles is allowed to exceed 3 mm, but not allowed to exceed 5 mm. The depth of the coarse grain ring in other parts shall not be greater than 3 mm. When the buyer has requirements for grain size, it shall be determined by negotiation between the supplier and the buyer, and indicated in the order (or contract).

5.9 Microstructure

Over-burning is not allowed in the profile microstructure.

5.10 Appearance quality

5.10.1 Metal indentation, non-metal indentation, cracks, bubbles, or surface corrosion are not allowed on the profile surface; however, water marks are permitted.

5.10.2 Mold marks, pits, bumps, scratches, dents, straightening marks, and abrasions that do not exceed half of the negative deviation value are allowed on the profile surface. The supplier is allowed to grind it longitudinally to a smooth surface. After grinding, the wall thickness deviation of the profile shall not exceed its allowable deviation range.

6 Test methods

6.1 Chemical composition

The chemical composition analysis of the profiles shall be carried out according to the methods specified in GB/T 20975 (all parts) or GB/T 7999. The arbitration shall be carried out according to the methods specified in GB/T 20975 (all parts).

6.2 Dimension deviation

The dimension deviation of the profile shall be tested in accordance with the method specified in GB/T 14846-2014.

6.3 Room temperature tensile mechanical properties

The room temperature tensile mechanical properties of the profiles shall be tested according to the method specified in GB/T 16865. When the buyer has special

requirements for sample selection, the supplier and the buyer can refer to GB/T 16865 for negotiation and determination, and indicate it in the order (or contract).

6.4 Compression properties

The compression properties of the profile shall be tested according to the method specified in GB/T 3251.

6.5 Conductivity

6.5.1 Conductivity of test pieces

The conductivity of test pieces of the profiles shall be tested according to the method specified in GB/T 12966. When using tensile test pieces, if the profile size and surface cannot meet the test requirements, the supplier and the buyer may refer to GB/T 12966 to agree on the test method and indicate it in the order (or contract).

6.5.2 Conductivity uniformity

The conductivity uniformity test of the profile shall be carried out on the profile surface according to the method specified in GB/T 12966.

6.6 Exfoliation corrosion resistance

The exfoliation corrosion resistance of the profile shall be tested according to the method specified in GB/T 22639-2022.

6.7 Ultrasonic flaw detection acceptance grade

The ultrasonic flaw detection acceptance grade of the profiles shall be evaluated in accordance with the provisions of GB/T 6519-2024. The ultrasonic inspection method shall be determined by negotiation between the supplier and the buyer and shall be indicated in the drawing, order form (or contract). If not specified, use the contact method.

6.8 Macro-structure

The macro-structure of the profile shall be tested according to the method specified in GB/T 3246.2.

6.9 Microstructure

The microstructure of the profile shall be tested according to the method specified in GB/T 3246.1.

6.10 Appearance quality

Visually inspect the product surface quality under natural diffuse light. When the defect depth is difficult to determine, measurement after polishing is allowed.

6.11 Other tests

Other tests on profiles shall be carried out according to the methods specified in GB/T 42792.

7 Product qualification

Profile production shall pass relevant certification and system evaluation, and product qualification shall comply with the provisions of GB/T 42792.

8 Process control

The process control of profiles shall comply with the provisions of GB/T 42792.

9 Inspection rules

9.1 Inspection and acceptance

9.1.1 The product shall be inspected by the supplier to ensure that the product quality complies with the requirements of this document and the order form (or the contract); the supplier shall fill in the quality certificate.

9.1.2 The buyer shall inspect the received products in accordance with the provisions of this document. When the inspection results are inconsistent with the provisions of this document and the order (or contract), they shall be submitted to the supplier in writing and resolved through negotiation between the supplier and the buyer. Objections to appearance quality and dimension deviation shall be raised within one month from the date of receipt of the product, and objections to other performance issues shall be raised within three months from the date of receipt of the product. Arbitration, if required, can be entrusted to a unit recognized by both the supplier and the buyer, and samples shall be taken on the buyer's side by the three parties jointly.

9.2 Batch

Products shall be submitted for acceptance in batches, and each batch shall consist of products of the same designation, state, batch furnace, heat treatment furnace, and dimensions. Requirements for batch weight, if any, shall be determined by negotiation between the supplier and the buyer and indicated in the order (or contract).

9.3 Weight

The product shall be weighed on the scales.

9.4 Inspection items

9.6.1 If the chemical composition of any sample fails to meet the requirements, judge the batch of products to be unqualified.

9.6.2 If the dimension deviation of any product fails to meet the standards, judge the product to be unqualified.

9.6.3 If the room temperature tensile mechanical properties and compression properties of any sample fail to meet the standards, double the number of samples from the batch of products shall be taken to repeat the test on the failed item. When all repeated test results are qualified, judge the batch of products to be qualified. If there are still unqualified samples in the repeated test results, judge the batch of products to be unqualified. After negotiation between the supplier and the buyer, the supplier is allowed to inspect each piece and deliver the qualified ones.

9.6.4 If the conductivity of any sample (or product) fails to meet the standards, the following criteria shall apply:

-- If the conductivity of the test sample piece is unqualified, the supplier shall inspect each piece one by one and deliver the qualified ones;

-- If the conductivity uniformity of a single piece fails to meet the requirements, judge the piece to be unqualified. If the conductivity uniformity of the same batch fails to meet the requirements, judge the batch to be unqualified.

9.6.5 If the exfoliation corrosion resistance of any sample fails to meet the requirements, double the number of samples shall be taken from the batch of products for repeated testing. When all repeated test results are qualified, judge the batch of products to be qualified. If there are still unqualified samples in the repeated test results, judge the batch of products to be unqualified.

9.6.6 If any product fails the ultrasonic flaw detection acceptance grade, for fixed-length products, judge as unqualified; for non-fixed-length products, it is allowed to remove the defective parts and re-inspect them. Only qualified ones can be delivered.

9.6.7 If the macro-structure of any test sample fails to meet the standards, the following criteria shall apply:

-- If the products are unqualified due to defects such as cracks, pores, bright grains, metal inclusions, non-metallic inclusions, etc., judge the batch of products as unqualified. However, upon agreement between the supplier and the buyer, the supplier may inspect each piece and deliver the qualified ones;

-- If the product fails to meet the standards due to stratification, tail shrinkage or coarse crystal ring, it is allowed to cut off a section from the extrusion tail end of the product and repeat the test until it passes the test. The other products in the batch shall be cut off according to the maximum length of the above-

mentioned defect distribution of the inspected product or tested one by one, and those that pass the test will be delivered.

9.6.8 If the microstructure of any sample fails to meet the standards, judge the batch of products as unqualified.

9.6.9 If the appearance quality of any product fails to meet the standards, judge the product to be unqualified.

10 Marking, packaging, transportation, storage and quality certificate

10.1 Marking

10.1.1 Product marking

Product marking shall comply with the provisions of GB/T 42916.

10.1.2 Package marking

The package marking of the product shall comply with the provisions of GB/T 3199.

10.2 Packaging

The packaging of the product shall comply with the provisions of GB/T 3199. If the buyer has special requirements, the supplier and the buyer shall negotiate and determine and indicate them in the order (or contract).

10.3 Transportation and storage

The transportation and storage of the product shall comply with the provisions of GB/T 3199.

10.4 Quality certificate

Each batch of products shall be accompanied by a quality certificate, which shall include the following:

a) name of supplier and ordering party;

b) product name:

c) designation, state, dimensions (or cross-section code);

d) batch number, contract number;

e) net weight or number of pieces;

This is an excerpt of the PDF (Some pages are marked off intentionally)

Full-copy PDF can be purchased from 1 of 2 websites:

1. https://www.ChineseStandard.us

- SEARCH the standard ID, such as GB 4943.1-2022.
- Select your country (currency), for example: USA (USD); Germany (Euro).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Tax invoice can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with download links).

2. https://www.ChineseStandard.net

- SEARCH the standard ID, such as GB 4943.1-2022.
- Add to cart. Only accept USD (other currencies - https://www.ChineseStandard.us).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with PDFs attached, invoice and download links).

Translated by: Field Test Asia Pte. Ltd. (Incorporated & taxed in Singapore. Tax ID: 201302277C)

About Us (Goodwill, Policies, Fair Trading…): https://www.chinesestandard.net/AboutUs.aspx

Contact: Wayne Zheng, Sales@ChineseStandard.net

Linkin: https://www.linkedin.com/in/waynezhengwenrui/

------ The End ------