

ICS 77.150.10

CCS H 61



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

GB/T 5237.1-2017

**Aluminium alloy extruded profiles for architecture - Part 1: Mill
finish profiles**

铝合金建筑型材 第1部分：基材

Issued on: October 14, 2017

Implemented on: July 1, 2018

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine;
Standardization Administration of the PRC**

Table of Contents

1	Scope
2	Normative references
3	Terms and definitions
4	Figure 7 cross-sectional dimension illustration
4.1	Product Classification
4.4	Dimensional deviation
4.4.1	Cross-sectional dimensions
5	Cross-sectional dimension illustration
6	Cross-sectional dimensions Figure
7	Figure
8	Figure
9	Figure
10	Cross-sectional dimensions Figure
11	Cross-sectional dimensions Figure
12	Table
13	Cross-sectional dimensions Figure
14	Cross-sectional dimension illustration

Foreword

GB/T 5237 "Aluminum Alloy Building Profile" is divided into six parts.

--- Part 1. Substrate;

---Part 2. Anodized profiles;

---Part 3. Electrophoretic paint profiles;

---Part 4. Spray profiles;

---Part 5. Painting profiles;

--- Part 6. Thermal insulation profiles. This part is the first part of GB/T 5237. This part is drafted in accordance with the rules given in GB/T 1.1-2009. This part replaces GB 5237.1-2008 "Aluminum Alloy Building Profiles Part 1. Substrate". This part is related to GB 5237.1-2008 In addition to the editorial changes, the main technical changes are as follows:

--- Removed the preface "This part 4.3, 4.4.1.1.2 is mandatory, the nominal wall thickness

of Table 3 is $\leq 1.50\text{mm}$ The requirement for the difference and the tensile performance requirement of

4.5 are mandatory, and the rest is recommended" (see before the.2008 edition) Word);

--- Deleted the preface "Design units and users use this part to order building doors and window profiles, according to the location of their doors and windows Statement of architectural technical needs and technical specifications, the correct choice of wall thickness dimensions (see the preface to the.2008 edition);

--- Removed the aluminum and aluminum alloy profiles not included in this section in the preface, and can be used in GB/T 6892-2006 "General Industrial Aluminum and Statement of aluminum alloy extruded profiles" (see the preface to the.2008 edition);

--- Revised the applicable "scope" of this section (see Chapter 1, Chapter 1 of the.2008 edition);

--- Revised the directives for normative references (see Chapter 2, Chapter 2 of the.2008 edition);

--- Removed the normative reference document GB/T 228-2002 (see Chapters 2 and

1 Scope

Part 1 of China's national standard for architectural aluminium alloy extruded profiles, covering mill finish material. This is the base of the whole series: the profile as it comes from the press, before any surface treatment, and the substrate on which Parts 2 to 6 build their anodised, powder coated, painted and thermally broken products. Nearly every window, door, curtain wall and balustrade in Chinese construction is made from these sections, which is an industry of tens of millions of tonnes. What this part fixes is what the rest depend on: the alloy and temper, the dimensional and form tolerances that decide whether a frame assembles squarely, the mechanical properties, and the surface condition the coating will have to adhere to. The part applies to hot extruded aluminium alloy profiles for architectural use in doors, windows, curtain walls and guardrails, and may be referenced for hot extruded tubes of the same purpose.

This part of GB/T 5237 specifies the terms and definitions, requirements, test methods, inspection rules and standards for substrates for aluminum alloy building profiles. Contents of packaging, packaging, transportation, storage, quality certificates and order forms (or contracts). This part is applicable to aluminum alloy hot extruded profiles (hereinafter referred to as substrates) for construction, such as doors, windows, curtain walls and guardrails. Hot extrusion pipes of the same purpose can also be referred to in this section.

2 Normative references

The following documents are indispensable for the application of this document. For dated

references, only dated versions apply to this article. Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 3190 chemical composition of deformed aluminum and aluminum alloy

GB/T 3199 Aluminum and aluminum alloy processing products packaging, marking, transportation, storage

GB/T 4340.1 Vickers hardness test for metallic materials - Part 1. Test methods

GB/T 7999 aluminum and aluminum alloy photoelectric direct reading emission spectrum analysis method

GB/T 8005.1 Terms for aluminium and aluminium alloys - Part 1. Product and process

GB/T 8170 Numerical Rounding Rules and Representation and Determination of Limit Values

GB/T 16865 Deformed aluminum, magnesium and alloy alloy processed products tensile test samples and methods

GB/T 17432 deformation aluminum and aluminum alloy chemical composition analysis sampling method

GB/T 20975 (all parts) Aluminum and aluminum alloy chemical analysis methods YS/T 67 deformed aluminum and aluminum alloy round ingot YS/T 420 aluminum alloy Vickers hardness test method

3 Terms and definitions

The following terms and definitions as defined in GB/T 8005.1 apply to this document.

3.1 Decorative surface exposed surfaces A profile that has been processed, assembled into a product and mounted on a building, and visually visible to the surface of the substrate (including being on or off) Closed state).

3.2 Circumscribed circle circumscribing circle The smallest circle that completely encloses the cross section of the substrate. As shown in Figure 1. Figure

4.1 Product Classification

4.1.1 Grade, status The grade and status shall comply with the requirements of Table 1. When ordering other grades or status, it should be agreed between the supplier and the buyer and in the order form (or contract)

1 Brand and status Grade a state a 6060, 6063 T5, T6, T66b 6005, 6063A, 6463, 6463A T5, T6 6061 T4, T6 a If the same building product uses different grades such as 6005, 6060, 6061, 6063 (or different grades of the same grade), use the same process for yang Extreme oxidation, it will be difficult to obtain an anodized surface of consistent color, it is

recommended to select the grade and state, fully consider the color inconsistency on the building structure influences. b Artificial aging after solution heat treatment, through the process control to make the mechanical properties meet the special state required by this part.

4.1.2 Dimensions The cross-sectional dimensions shall be in accordance with the drawings specified by the supplier and the buyer. The length should be agreed between the supplier and the buyer and stated in the order form (or contract).

4.1.3 Tags and examples The substrate marks are expressed in the order of product name, this part number, grade, status, section code and length. Examples of tags are as follows: 6063 grade, T5 state, section code 421001, length of 6000mm substrate, marked as. Substrate GB/T 5237.1-6063T5-421001x6000

4.2 Quality Assurance The quality of the ingot used for the substrate shall comply with the requirements of YS/T 67.

4.3 Chemical composition The chemical composition should meet the requirements of GB/T 3190.

4.4.1 Cross-sectional dimensions

4.4.1.1 Wall thickness dimensions 4.4.1.1.1 The wall thickness is divided into three groups. A, B and C, as shown in Figure 2. Description. A

--- wing wall thickness; B

--- closed wall thickness of the peripheral wall of the cavity; C

--- the partition wall thickness between two closed cavities; H

---non-wall thickness size; E

--- The reference size that has a significant influence on the H dimension deviation of the opening. Figure

2 Cross-sectional size indication diagram 4.4.1.1.2 The allowable deviation of wall thickness is divided into ordinary level, high precision level and super high precision level, as shown in Table 2. Wall thickness tolerance should be assembled according to actual conditions or The lap joint requires selection and is indicated in the drawing. The wall thickness is not indicated in the drawing and can be directly measured. The allowable deviation is performed at the ordinary level. Line, but the assembly tolerance of 6060T5, 6063T5, 6063AT5, 6463T5, 6463AT5 substrate wall thickness tolerance, should be selected Table

2 High precision or super high precision, or stricter than ultra high precision deviation requirements. Table

2 Wall thickness tolerance level Nominal wall thickness Mm The wall thickness of the