



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

GB/T 3880.1-2023

**Wrought aluminium and aluminium alloy plates, sheets and
strips for general engineering - Part 1: Technical conditions of
delivery**

一般工业用铝及铝合金板、带材 第1部分：一般要求

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1 Scope

GB/T 3880.1-2023 is Part 1 of the Chinese standard for wrought aluminium and aluminium alloy plate, sheet and strip for general engineering, and it is one of the most widely quoted material standards in the country: virtually every purchase order for Chinese aluminium flat product references it. Part 1 carries the technical conditions of delivery, that is the framework the other parts hang on. It sets the product classification by alloy, temper and form, the technical requirements covering chemical composition, mechanical properties, surface condition and internal quality, the test methods, the inspection rules including sampling and retest, and the marking, packaging, transport and storage together with the quality certificate and the content required of a purchase order or contract. It applies to hot-rolled and cold-rolled plate, sheet and strip. The 2023 edition takes effect on 1 April 2024. For a buyer specifying Chinese aluminium sheet, or a mill supplying it, this is the document the contract points at.

This document specifies the product classification, technical requirements, test methods, inspection rules, marking, packaging, transportation, storage and quality certificate and order sheet (or contract) content for wrought aluminium and aluminium alloy plates, sheets and strips for general engineering. This document applies to general engineering aluminum and aluminum alloy hot-rolled or cold-rolled plates (hereinafter referred to as "plates") and

sheets and strips (hereinafter referred to as "sheets and strips").

2 Normative references

The following referenced documents are indispensable for the application 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 229, Metallic materials -- Charpy pendulum impact test method

GB/T 230.1, Metallic materials -- Rockwell hardness test -- Part

3 Defects for plates, sheets and strips

GB/T 42914, Test method for fracture toughness of aluminium alloy products

GB/T 42916, Identification marking of aluminium and aluminium alloy products YS/T 1629.1-2023, Aluminum alloy plates for aviation - Part 1.7050T7451 plates YS/T 1634, Residual stress evaluation method for aluminum and aluminum alloy products

4 Product classification

4.1 Designation, condition, size specifications and blank opening method The designation, condition, thickness and blank opening method of the product shall comply with the requirements in Table

1. The width and length of the plate, the width of the sheet and strip, and the inner diameter of the roll shall comply with the requirements in Table

2. If the demander has requirements for other designations, conditions, dimensions, or blank opening methods, the supplier and the purchaser shall negotiate and determine with reference to the "Registration sheet for deformed aluminum and aluminum alloy product condition and performance " and indicate in the order sheet (or contract).

5 Technical requirements

The technical requirements of the product shall comply with the provisions of Table 3. When the purchaser has special requirements, the supplier and the purchaser shall negotiate and determine with reference to the "Registration sheet for deformed aluminum and aluminum alloy product condition and performance" and indicate in the order sheet (or contract).

6 Test methods

The test method of the product shall comply with the provisions of Table

9. When the purchaser has special requirements for the test method, it shall be determined

through negotiation between the supplier and the purchaser, and shall be noted in the order sheet (or contract).

7.1 Inspection and acceptance

7.1.1 The product shall be inspected by the supplier to ensure that the product quality complies with the provisions of this document and the order sheet (or contract), and a quality certificate shall be filled out.

7.1.2 The purchaser shall inspect the received products in accordance with the provisions of this document. If the inspection results are inconsistent with the provisions of this document and the order sheet (or contract), a written request shall be submitted to the supplier for negotiation between the supplier and the purchaser. Objections related to surface quality and dimensional deviations shall be raised within 1 month from the date of receipt of the product. Objections related to other performance shall be raised within 3 months from the date of receipt of the product. If arbitration is needed, it can be entrusted to a unit recognized by both the supplier and the purchaser, and sampling can be done jointly by the purchaser.

7.2 Batching Products shall be submitted for acceptance in batches. Each batch shall be composed of products of the same designation, condition, size specifications and blank opening method. There is no limit on batch weight. If the purchaser requires batches based on melting times and heat treatment heats (or continuous heat treatment heats); or if there are requirements for batch weight, this shall be determined through negotiation between the supplier and the purchaser and noted in the order sheet (or contract).

7.6 Judgment of test results

7.6.1 Chemical composition When the chemical composition of any specimen fails, if the product can distinguish the melting order, the melting order represented by the sample will be deemed to be unqualified. Other melts are inspected in sequence. Delivery to those who pass the test. If the melting times cannot be distinguished, the batch will be deemed unqualified.

7.6.2 Size deviation When the size deviation of any plate fails, the supplier is allowed to inspect the finished products one by one. Delivery to those who pass the test. If the size deviation of any sheet and strip fails, the roll will be deemed unqualified.

7.6.3 Covering rate If the covering rate of any specimen fails, double the number of specimens shall be taken from the batch of products for repeated testing. If all repeated test results are qualified, the batch of products will be deemed qualified. If the repeated test results are still unqualified, the product represented by the specimen will be deemed to be unqualified. Suppliers are allowed to inspect finished products piece by piece (roll). Delivery to those who pass the test.

7.6.4 Tensile mechanical properties, compression properties, impact toughness, bending properties, fatigue properties, residual stress, stress corrosion resistance, exfoliation corrosion resistance, intergranular corrosion sensitivity

7.6.4.1 When any specimen fails to pass the test, the product of this batch (or heat treatment heat) will be deemed to be unqualified or shall be subject to 7.6.4.2.

7.6.4.2 If the heat treatment heat of the product can be distinguished, double the number of specimens shall be taken from the heat treatment heat represented by the specimen for repeated testing. If the heat treatment heats cannot be distinguished, double the number of specimens shall be taken from the batch of products for repeated testing (including products represented by unqualified samples taken for the first time). If the repeated test results are all qualified, the product of this batch (or heat treatment heat) will be deemed qualified. If the specimen performance is still unqualified in the repeated test results, the product of this batch (or heat treatment heat) will be deemed to be unqualified. Upon agreement between the supplier and the purchaser, the supplier is allowed to inspect the finished products sheet by sheet (roll). Delivery to qualified candidates may be carried out according to 7.6.4.3.

7.6.4.3 After repeated heat treatment, the supplier shall inspect all exit-factory inspection items in Table 10 according to the heat, except chemical composition, size deviation, coating layer and appearance quality. The sampling quantity is according to Table

11. When all inspection results are qualified, the batch of products is deemed to be qualified; otherwise, the batch of products is deemed to be unqualified.

7.6.5 Fracture toughness

7.6.5.1 If the plane strain fracture toughness K_{Ic} value of any specimen fails or the "batch release K_{Ic} " value does not meet the requirements, the product of this batch (or heat treatment heat) will be judged to be unqualified or shall be implemented according to 7.6.4.2.

7.6.5.2 If the plane stress fracture toughness of any sample fails, the product of this batch (or heat treatment heat) shall be deemed to be unqualified or shall be implemented in accordance with 7.6.4.2.

7.6.6 Conductivity

7.6.6.1 When the conductivity of any specimen blank fails to meet the standard, proceed according to 7.6.4.2.

7.6.6.2 If the conductivity uniformity of any product fails, the batch will be deemed unqualified.

7.6.7 Matching relationship between electrical conductivity and mechanical properties