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

GB/T 42793-2024

**General technical specification of aluminium alloy plates and
sheets for aviation products**

航空用铝合金板材通用技术规范

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Table of Contents

Foreword	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	6
4 Product classification	6
5 Technical requirements	8
6 Test methods	18
7 Product conformity assessment	20
8 Process control	20
9 Inspection rules	20
10 Marking, packaging, transportation, storage, quality certificate	29
11 Order (or contract) contents	30
Appendix A (Normative) Product qualification assessment	31
Appendix B (Normative) Process control	35
Appendix C (Normative) Determination of fatigue life results for products with a thickness not less than 6.35 mm	39
References	40

1 Scope

This document specifies the product classification, technical requirements, test methods, product qualification assessment, process control, inspection rules, marking, packaging, transportation, storage, contents of quality certificates and purchase orders (or contracts) for aluminum alloy plates and sheets for aviation products.

This document applies to the production and acceptance of aluminum alloy plates and sheets for aviation products.

2 Normative references

GB/T 230.1

GB/T 232

GB/T 3075

GB/T 3190

GB/T 3199

GB/T 3246.1

GB/T 3246.2

GB/T 3251

GB/T 3880.1-2023

GB/T 3880.2

3 Terms and definitions

The terms and definitions, which are defined in GB/T 8005.1 and GB/T 26492.3, apply to this document.

4 Product classification

Product designations, supply conditions, dimensions shall conform to the provisions of Table 1. If the purchaser requires other designations, supply conditions, dimensions, the purchaser and supplier shall negotiate and determine them with reference to the "Registration form for conditions and performance of wrought aluminum and aluminum alloy products", indicate them in the order (or contract).

5 Technical requirements

The technical requirements of the product shall conform to the provisions of Table 2. If the buyer has special requirements, they shall be determined by both the supplier and the buyer through negotiation with reference to the "Registration Form for the Condition and Performance of Wrought Aluminum and Aluminum Alloy Products", meanwhile it shall be noted in the purchase order (or contract).

9.6.1.3 If the coverage rate of any specimen is unqualified, double the number of specimens shall be taken from the batch for repeated testing. If all repeated test results are qualified, the batch is considered qualified. If the repeated test results are still unqualified, each sheet (roll) shall be inspected and only qualified shall be delivered.

9.6.1.4 If the tensile mechanical properties of any specimen are unqualified, double the

number of specimens may be cut from the same master strip for repeated testing. If all repeated test results are qualified, the batch is considered qualified; if any specimen still fails to meet the performance requirements in the repeated test results, the batch is considered unqualified. With the agreement of both the supplier and the buyer, the supplier is allowed to inspect each piece individually and only qualified shall be delivered.

9.6.1.5 If the bending performance of any specimen is unqualified, double the number

of specimens may be cut from the same master strip for repeated testing. If all repeated test results are qualified, the batch is considered qualified; if any specimen still fails to meet the performance requirements in the repeated test results, the batch is considered unqualified. With the agreement of both the supplier and the buyer, the supplier is allowed to inspect each sheet individually and only qualified shall be delivered.

9.6.1.6 If the fatigue crack propagation rate of any specimen fails to meet the standard, double the number of specimens may be cut from the same base plate for repeated testing. If all repeated test results are satisfactory, the batch is deemed satisfactory; if any specimen fails to meet the standard in the repeated test results, the batch is deemed unsatisfactory.

9.6.1.7 If the plane stress fracture toughness of any specimen fails to meet the standard, the batch is deemed unsatisfactory. If the specimen width is not greater than 406 mm and the test result is invalid only because the net section stress validity criterion does not meet the requirements of GB/T 42914, an invalid KC or Kapp may be used to determine whether the specimen is satisfactory.

9.6.1.8 If the electrical conductivity of any specimen blank fails to meet the standard, the batch is deemed unsatisfactory.

9.6.1.9 If the electrical conductivity uniformity of any product fails to meet the standard, the batch is deemed unsatisfactory.

9.6.1.10 If the intergranular corrosion sensitivity of any specimen fails to meet the

standard, the batch is deemed unsatisfactory.

9.6.1.11 If any product fails ultrasonic flaw detection, that product is deemed unqualified.

9.6.1.12 If the microstructure of any specimen is unqualified, the entire batch is deemed unqualified.

9.6.1.13 If the appearance quality of any specimen is unqualified, that product is deemed unqualified.

9.6.2.1 If the chemical composition of any specimen is unqualified, the batch of products represented by that specimen is deemed unqualified.

9.6.2.2 If the dimensional deviation of any product is unqualified, that product is deemed unqualified.

9.6.2.3 If the tensile properties of any specimen are unqualified, it is permissible to cut twice the number of specimens from the same base plate for repeated testing. If all repeated test results are qualified, the base plate is deemed qualified; if any specimen in the repeated test results still fails to meet the performance requirements, the base plate is deemed unqualified.

9.6.2.4 If the compressive properties of any specimen fail to meet the requirements,

double the number of specimens may be cut from the same base plate for repeated testing. If all repeated test results are satisfactory, the base plate is deemed satisfactory;

if any specimen fails to meet the requirements in the repeated tests, the base plate is deemed unsatisfactory.

9.6.2.5 Fatigue life results shall be determined according to Appendix C. Retesting is

permitted for individual fatigue specimens that do not meet the minimum fatigue life requirements of specific aluminum alloy product standards. Retest specimens shall be cut from a location immediately adjacent to the original sampling position.

9.6.2.6 If the fracture toughness of any specimen fails to meet the requirements, the base plate is deemed unsatisfactory. For plane strain fracture toughness, if the result obtained according to GB/T 42914 is "Batch release KQ", this KQ value can be used to determine whether the specimen is satisfactory. For plane stress fracture toughness, if the specimen width is not greater than 406 mm and the test result is invalid only because the net section stress effectiveness criterion does not meet the requirements of GB/T 42914, an invalid KC or Kapp value can be used to determine whether the specimen is satisfactory.

9.6.2.7 If the residual stress test of any specimen or sample fails, the entire batch is deemed unqualified.

9.6.2.8 If the electrical conductivity of any specimen blank fails, the entire base plate is deemed unqualified. However, sampling for stress corrosion resistance and exfoliation corrosion resistance tests is permitted. If all results of the stress corrosion resistance and exfoliation corrosion resistance tests are qualified, the base plate is deemed qualified;

if any specimen fails either the stress corrosion resistance or exfoliation corrosion resistance test, the entire base plate is deemed unqualified. If the electrical conductivity uniformity of any product fails, the entire batch is deemed unqualified.