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

GB/T 3880.2-2024

Replacing GB/T 3880.2-2012

**Wrought aluminium and aluminium alloy plates, sheets and
strips for general engineering - Part 2: Mechanical properties**

一般工业用铝及铝合金板、带材 第2部分：力学性能

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Foreword Foreword

The document is drafted in accordance with the rules given in GB/T 1.1-2020, Directives for standardization-Part 1: Rules for the structure and drafting of standardizing documents.

It is Part 2 of GB/T 3880, Wrought aluminium and aluminium alloy plates, sheets and strips for general engineering. The following parts of GB/T 3880 have been published: Part 1: General requirements; Part 2: Mechanical properties; Part 3: Dimensional deviations.

The document replaces GB/T 3880.2-2012. Apart from structural adjustments and editorial changes, the foreword records the technical changes series by series, for the 1000, 2000, 3000, 4000, 5000, 6000, 7000 and 8000 groups in turn. For each series it names the grades and tempers whose property values have been deleted, those whose values have been added, and those whose values have been changed, each with a cross-reference to Clause 4 of this edition and to Clause 2 of the 2012 edition. The lists run grade by grade and temper by temper and are not reproduced here.

Attention is drawn to the possibility that some of the content of the document may be the subject of patent rights; the issuing body accepts no responsibility for identifying patents.

The document was proposed by the China Nonferrous Metals Industry Association and is under the jurisdiction of the National Technical Committee on Nonferrous Metals of Standardization Administration of China (SAC/TC 243).

Introduction Introduction

The introduction records that aluminium and aluminium alloys are used in the building industry, in containers and packaging, in transport, in the electric power industry, in the food industry, in machinery and equipment and in durable consumer goods, and that GB/T 3880 lays down the product classification, technical requirements, test methods and inspection

rules for aluminium and aluminium alloy plate, sheet and strip for general engineering, for use by the producer, the purchaser and the testing party.

GB/T 3880 is made up of three parts. Part 1: General requirements lays down the product classification, technical requirements, test methods, inspection rules, marking, packaging, transport and storage, and the content of the quality certificate and of the order or contract, and defines the field of application. Part 2: Mechanical properties lays down the tensile mechanical properties and the bending properties corresponding to the grades and tempers of GB/T 3880.1. Part 3: Dimensional deviations lays down the deviation ranges for the thickness, width, length, flatness, diagonal and other dimensions of plate and strip obtained by the different rolling routes.

The introduction adds that the use of aluminium and aluminium alloy plate and strip in China has widened, that production equipment has been renewed and the level of property control raised, and that an increasing share of plate is produced by roll casting and by continuous casting and rolling as breakdown routes, with a marked change in the mechanical properties of the product. On the basis of the survey carried out, property values for more than one hundred further grades or tempers were added in this edition and the requirements for more than one hundred thickness ranges were changed.

1 Scope

The document lays down the mechanical properties of aluminium and aluminium alloy plate, sheet and strip for general engineering.

It applies to hot-rolled or cold-rolled plate, sheet and strip of aluminium and aluminium alloys for general engineering, referred to below as plate and strip.

2 Normative references

The document states that it has no normative references.

3 Terms and definitions

The document states that there are no terms and definitions that need to be defined for it.

4 Mechanical properties

The room-temperature tensile properties of plate and strip are to conform to Table 1. When the folding test is carried out at the bending radius laid down in Table 1, the surface of the test piece is not to crack. For plate and strip whose mechanical properties are not listed in Table 1, the properties are agreed between supplier and purchaser and stated in the order or contract.

Table 1, Mechanical properties, occupies the whole of the technical part of the document.

Its columns are: grade; supply temper; sample temper; thickness in millimetres; and, under the heading room-temperature tensile test result, the tensile strength R_m in MPa, the proof strength at non-proportional extension $R_{p0.2}$ in MPa, the percentage elongation after fracture measured on A50 mm and on A5.65, and the bending radius for folding through 90 degrees and through 180 degrees. The grades run from the 1000 series through to the 8000 series, and clad grades are listed alongside the corresponding bare grades.

The body of Table 1 could not be transcribed. In the extracted text the grade and temper labels, the thickness bands, the strength columns, the elongation columns and the bending-radius columns appear as separate runs of values that cannot be matched row by row, so no figure taken from the body of Table 1 is reported here. The footnotes to the table are set as running text and are reported below.

Footnote a: where the sample temper differs from the supply temper and the purchaser re-checks the properties, the sample is to be heat treated to the sample temper under the corresponding heat-treatment schedule before the properties are verified.

Footnote b: the letter t in the bending radius denotes the thickness of the plate. Where both the 90 degree column and the 180 degree column carry a value, the folding angle is agreed between supplier and purchaser and stated in the order or contract; where it is not stated, 90 degrees applies. Where the purchaser has particular requirements for the bending radius, the room-temperature tensile properties are agreed between the two parties and stated in the order or contract.

Footnote c: for plate and strip of 2014, clad 2014, 2017A, 2219, 2024, clad 2024, clad 2A11, 2A12 and clad 2A12 in the O temper, a requirement for property values in the T42 or the T62 temper is to be stated in the order or contract.

Footnote d: for plate and strip of 6A02 and 7075 in the O temper, a requirement for property values in the T62 temper is to be stated in the order or contract.

Footnote e: for plate and strip of 6A02 in the T1 temper, the sample temper is agreed between supplier and purchaser as either T42 or T62 and stated in the order or contract; where it is not stated, T62 applies.

Footnote f: the T4 temper of 7020 reaches the specified mechanical properties in a stable manner only after three months of natural ageing at room temperature; holding the quenched test piece at 60 °C to 65 °C for 60 h gives approximately the same properties, and natural ageing governs in the event of arbitration.

Footnote g: the T761 temper is used only for 7475 and clad 7475 sheet and strip. It has the same definition as T76, that is, artificial over-ageing after solution heat treatment in order to obtain good resistance to exfoliation corrosion.

Relationship to previous standards Relationship to previous

standards

The foreword records the publication history of the document and of the documents it replaces. It was first issued in 1983 as GB 3880-1983, Aluminium and aluminium alloy plates. It was revised for the first time in 1997 as GB 3880-1997, Aluminium and aluminium alloy rolled plates, the revision incorporating the content of GB 3193-1982, Hot-rolled aluminium and aluminium alloy plates, of GB 10568-1989, High-quality hot-rolled aluminium and aluminium alloy plates, and of GB 10569-1989, High-quality cold-rolled aluminium and aluminium alloy plates. It was revised for the second time in 2006 as GB/T 3880.2-2006, Wrought aluminium and aluminium alloy plates, sheets and strips for general engineering-Part 2: Mechanical properties. The third revision was made in 2012, and the present edition is the fourth revision.