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(JAA/JSA)

**Aluminium and aluminium alloy
sheets, strips and plates**

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In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry, through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Aluminium Association (JAA)/ Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently, **JIS H 4000**:2006 is replaced with this Standard.

However, **JIS H 4000**:2006 may be applied in the **JIS** mark certification based on the relevant provisions of Article 19 Clause 1, etc. of the Industrial Standardization Law until March 19, 2015.

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Aluminium and aluminium alloy sheets, strips and plates

Introduction

This Japanese Industrial Standard has been prepared based on the first edition of **ISO 209** published in 2007, the second edition of **ISO 6361-1** published in 2011, the third edition of **ISO 6361-2** published in 2011, the second edition of **ISO 6361-3** published in 2011, the second edition of **ISO 6361-4** published in 2011 and the first edition of **ISO 6361-5** published in 2011 with some modifications of the technical contents.

The portions with continuous sidelines or dotted underlines are the matters in which the contents of the corresponding International Standards have been modified. A list of modifications with the explanations is given in Annex JA.

1 Scope

This Standard specifies rolled aluminium and aluminium alloy sheets, strips, plates, clad plates and disks (hereafter referred to as “sheets”, “strips”, “plates”, “clad plates” and “disks”).

NOTE : The International Standards corresponding to this Standard and the symbol of degree of correspondence are as follows:

ISO 209:2007 *Aluminium and aluminium alloys—Chemical composition*

ISO 6361-1:2011 *Wrought aluminium and aluminium alloys—Sheets, strips and plates—Part 1: Technical conditions for inspection and delivery*

ISO 6361-2:2011 *Wrought aluminium and aluminium alloys—Sheets, strips and plates—Part 2: Mechanical properties*

ISO 6361-3:2011 *Wrought aluminium and aluminium alloys—Sheets, strips and plates—Part 3: Strips: Tolerances on shape and dimensions*

ISO 6361-4:2011 *Wrought aluminium and aluminium alloys—Sheets, strips and plates—Part 4: Sheets and plates—Tolerances on shape and dimensions*

ISO 6361-5:2011 *Wrought aluminium and aluminium alloys—Sheets, strips and plates—Part 5: Chemical composition* (overall evaluation: MOD)

The symbols which denote the degree of correspondence in the contents between the relevant International Standards and **JIS** are IDT (identical), MOD (modified), and NEQ (not equivalent) according to **ISO/IEC Guide 21-1**.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS H 0001 *Aluminium, magnesium and their alloys—Temper designation*

NOTE : Corresponding International Standard: ISO 2107 *Aluminium and aluminium alloys—Wrought products—Temper designations* (MOD)

JIS H 0321 *General rules for inspection of non-ferrous metal materials*

JIS H 0505 *Measuring methods for electrical resistivity and conductivity of non-ferrous materials*

JIS H 1305 *Method for optical emission spectrochemical analysis of aluminium and aluminium alloys*

JIS H 1306 *Methods for atomic absorption spectrometric analysis of aluminium and aluminium alloys*

JIS H 1307 *Methods for inductively coupled plasma emission spectrometric analysis of aluminium and aluminium alloys*

JIS H 1351 *General rules for chemical analysis of aluminium and aluminium alloy*

JIS H 1352 *Methods for determination of silicon in aluminium and aluminium alloys*

JIS H 1353 *Methods for determination of iron in aluminium and aluminium alloys*

JIS H 1354 *Methods for determination of copper in aluminium and aluminium alloys*

JIS H 1355 *Methods for determination of manganese in aluminium and aluminium alloys*

JIS H 1356 *Method for determination of zinc in aluminium and aluminium alloys*

JIS H 1357 *Methods for determination of magnesium in aluminium and aluminium alloys*

JIS H 1358 *Methods for determination of chromium in aluminium and aluminium alloys*

JIS H 1359 *Methods for determination of titanium in aluminium and aluminium alloys*

JIS H 1360 *Methods for determination of nickel in aluminium and aluminium alloys*

JIS H 1361 *Methods for determination of tin in aluminium and aluminium alloys*

JIS H 1362 *Method for determination of vanadium in aluminium and aluminium alloys*

JIS H 1363 *Methods for determination of zirconium in aluminium alloys*

JIS H 1364 *Methods for determination of bismuth in aluminium and aluminium alloys*

JIS H 1365 *Methods for determination of boron in aluminium and aluminium alloys*

JIS H 1366 *Methods for determination of lead in aluminium and aluminium alloys*

JIS H 1367 *Methods for determination of beryllium in aluminium and aluminium alloys*

JIS H 1368	<i>Method for determination of gallium in aluminium and aluminium alloys</i>
JIS Z 2241	<i>Metallic materials—Tensile testing—Method of test at room temperature</i>
JIS Z 2248	<i>Metallic materials—Bend test</i>
JIS Z 8401	<i>Guide to the rounding of numbers</i>
ASTM G34	<i>Standard Test Method for Exfoliation Corrosion Susceptibility in 2XXX and 7XXX Series Aluminum Alloys (EXCO Test)</i>
ASTM G47	<i>Standard Test Method for Determining Susceptibility to Stress-Corrosion Cracking of 2XXX and 7XXX Aluminum Alloy Products</i>
ASTM G66	<i>Standard Test Method for Visual Assessment of Exfoliation Corrosion Susceptibility of 5XXX Series Aluminum Alloys Products (ASSET Test)</i>

3 Terms and definitions

For the purpose of this Standard, the following terms and definitions apply.

3.1 sheet

generally, a rolled product that is rectangular in cross-section with thickness 0.20 mm or over up to and including 6 mm, which is sheared or sawed and supplied in straight lengths

3.2 strip

generally, a rolled product of rectangular cross-section with thickness 0.20 mm or over up to and including 6 mm, supplied in coils with slit edges

A “strip” is sometimes called a “coil”.

NOTE : For definition of sheets and strips, those with a thickness 0.15 mm or over up to and including 0.20 mm usually fall in the thickness range of foils (JIS H 4160), but are sometimes supplied as sheets or strips besides foils.

3.3 plate

generally, a rolled product that is rectangular in cross-section and with thickness over 6 mm, with sheared or sawn edges and supplied in straight lengths

3.4 clad plate

a plate composed of a core material (base plate) and a skin material (plate of different alloy from base plate), manufactured by bonding the skin material over the whole surface of the core material usually by pressure-welding

3.5 disk

generally, a circular sheet manufactured by cutting a sheet or a strip by pressing or shearing

4 Alloy numbers, classes and symbols

The alloy numbers, classes and symbols shall be as given in table 1. The product symbol shall consist of the symbol shown in the table, and the symbol of temper grade suffixed to it.

Table 1 Alloy numbers, classes and symbols

Alloy number ^{a)}	Class	Symbol	Characteristics and examples of application (informative)
1085	—	A1085P	Pure aluminium having low strength but excellent formability, weldability and corrosion resistance. Used for reflection plates, lighting fixtures, ornaments, tanks for chemical industry, conductive materials and others.
1080	—	A1080P	
1070	—	A1070P	
1060	—	A1060P ^{b)}	Pure aluminium for conductor having high electrical conductivity. Used for bus bars and others.
1050	—	A1050P	Same as 1085 and 1080.
1050A	—	A1050AP	Alloy having a slightly higher strength than that of 1050.
1100	—	A1100P	Having a relatively low strength but excellent formability, weldability and corrosion resistance. Used for general vessels, architectural materials, electrical appliances, various containers, printing boards and others.
1100A (1N00)	—	A1100AP (A1N00P)	Slightly higher in strength than and superior in formability to 1100. Used for domestic wares.
1200	—	A1200P	Same as 1100.
1230A (1N30)	—	A1230AP (A1N30P)	Excellent in ductility and corrosion resistance. Used for aluminium foils and others.
2014	—	A2014P	A high strength heat-treated alloy. In the case of clad plate, 6003 is clad on the surface to improve corrosion resistance. Used for aircraft materials, various construction materials and others.
	—	A2014PC ^{c)}	
2014A	—	A2014AP	A heat-treated alloy having a slightly lower strength than that of 2014.
2017	—	A2017P	Heat-treated alloy. High strength and good machinability. Used for aircrafts materials, various construction materials and others.
2017A	—	A2017AP	Alloy higher in strength than 2017.
2219	—	A2219P	Having high strength and excellent heat resistance and weldability. Used for aerospace instruments and others.
2024	—	A2024P	Higher in strength than 2017 and excellent in machinability. Clad plate has an improved corrosion resistance by cladding 1230 on the surface. Used for aircraft materials, various construction materials and others.
	—	A2024PC ^{c)}	
2124	—	A2124P	Used for aircraft materials and others.
3003	—	A3003P	Slightly higher in strength than 1100 and excellent in formability, weldability and corrosion resistance. Used for general vessels, architectural materials, ship materials, fin stocks, various containers and others.
3103	—	A3103P	
3203	—	A3203P	
3004	—	A3004P	Higher in strength than 3003, excellent in formability and good in corrosion resistance.
3104	—	A3104P	Used for beverage cans, roof plates, material for door panels, coloured aluminium, lamp sockets and others.

Table 1 (continued)

Alloy number ^{a)}	Class	Symbol	Characteristics and examples of application (informative)
3005	—	A3005P	Higher in strength than 3003, and excellent in corrosion resistance. Used for architectural material, coloured aluminium and others.
3105	—	A3105P	Slightly higher in strength than 3003, excellent in formability and corrosion resistance. Used for architectural material, coloured aluminium, caps and others.
5005	—	A5005P	Equivalent in strength to 3003, excellent in corrosion resistance, weldability and machinability. Used for exterior and interior materials of buildings, interior material of vehicles and others.
5110A (5N01)	—	A5110AP (A5N01P)	Equivalent in strength to 3003. A high brightness can be obtained by bright processing such as chemical or electrolytic polishing followed by anodic oxidation processing. Excellent in formability and corrosion resistance. Used for ornaments, kitchen utensils, name plates and others.
5021	—	A5021P	Equivalent in strength to 5052, excellent in corrosion resistance and formability. Used for beverage can material and others.
5042	—	A5042P	Alloy having a strength between those of 5052 and 5182. Excellent in corrosion resistance and formability. Used for beverage can material and others.
5050	—	A5050P	Used for architectural materials, refrigerating machines, electronics devices and others.
5052	—	A5052P	Representative alloy having a medium strength. Excellent in corrosion resistance, formability and weldability. Used for ship materials, vehicle materials, architectural materials, beverage cans and others.
5154	—	A5154P	Alloy having strength between those of 5052 and 5083. Excellent in corrosion resistance, formability and weldability. Used for ship materials, vehicle materials, pressure vessels and others.
5254	—	A5254P	An alloy of 5154, but with restrained decomposition of hydrogen peroxide achieved by limiting the content of impurities, the other characteristics being the same as those of 5154. Used for hydrogen peroxide vessels and others.
5454	—	A5454P	Higher in strength than 5052, excellent in corrosion resistance, formability and weldability. Used for automobile wheels and others.
5754	—	A5754P	Alloy having strength intermediate between those of 5052 and 5454.
5456	—	A5456P	Used for welding structural materials with higher strength, pressure vessels, ship materials and others.
5082	—	A5082P	Approximately equivalent in strength to 5083, and excellent in corrosion resistance and formability. Used for beverage cans, and others.
5182	—	A5182P	
5083	Ordinary class	A5083P	Alloy having the highest strength among non-heat-treated alloys. Excellent in corrosion resistance and weldability. Used for ship and vehicle materials, low-temperature tanks, pressure vessels and others.
	Special class	A5083PS ^{d)}	Used for liquefied natural gas storage tanks.