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JIS H 4000 : 2006

(JAA/JSA)

Aluminium and aluminium alloy sheets, strips and plates

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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 Aluminum 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** : 1999 is replaced with this Standard. In addition, **JIS H 4180** : 1990 is withdrawn and integrated into this Standard.

This revision has been made based on **ISO 209-1** : 1989 *Wrought aluminium and aluminium alloys—Chemical composition and forms of products—Part 1: Chemical composition*, **ISO 209-2** : 1989 *Wrought aluminium and aluminium alloys—Chemical composition and forms of products—Part 2: Forms of products*, **ISO 6361-1** : 1986 *Wrought aluminium and aluminium alloy sheets, strips and plates—Part 1: Technical conditions for inspection and delivery*, **ISO 6361-2** : 1990 *Wrought aluminium and aluminium alloy sheets, strips and plates — Part 2: Mechanical properties*, **ISO 6361-3** : 1985 *Wrought aluminium and aluminium alloy sheets, strips and plates—Part 3: Strips—Tolerances on shape and dimensions* and **ISO 6361-4** : 1988 *Wrought aluminium and aluminium alloy sheets, strips and plates—Part 4: Sheets and plates — Tolerances on form and dimensions* for the purpose of making it easier to compare this Standard with International Standard; to prepare Japanese Industrial Standard conforming with International Standard; and to propose a draft of an International Standard which is based on Japanese Industrial Standard.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

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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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Introduction This Japanese Industrial Standard has been prepared based on the first editions of **ISO 209-1** *Wrought aluminium and aluminium alloys—Chemical composition and forms of products—Part 1: Chemical composition* and **ISO 209-2** *Wrought aluminium and aluminium alloys—Chemical composition and forms of products—Part 2: Forms of products* published in 1989, the first edition of **ISO 6361 -1** *Wrought aluminium and aluminium alloy sheets, strips and plates—Part 1: Technical conditions for inspection and delivery* published in 1986, the second edition of **ISO 6361-2** *Wrought aluminium and aluminium alloy sheets, strips and plates—Part 2: Mechanical properties* published in 1990, the first edition of **ISO 6361-3** *Wrought aluminium and aluminium alloy sheets, strips and plates—Part 3: Strips—Tolerances on shape and dimensions* published in 1985 and the first edition of **ISO 6361-4** *Wrought aluminium and aluminium alloy sheets, strips and plates—Part 4: Sheets and plates—Tolerances on form and dimensions* published in 1988 with some modifications of the technical contents.

The portions given sidelines or dotted underlines are the matters in which the contents of the original International Standards have been modified. A list of modifications with the explanations is given in Annex (informative).

1 Scope This Standard specifies rolled aluminium and aluminium alloy sheet and plate, clad sheet and plate, strip and disk (hereafter referred to as "plate", "clad plate", strip and "disk").

Remarks : The International Standards corresponding to this Standard are as follows.

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

ISO 209-1:1989 *Wrought aluminium and aluminium alloys—Chemical composition and forms of products—Part 1: Chemical composition* (MOD)

ISO 209-2:1989 *Wrought aluminium and aluminium alloys—Chemical composition and forms of products—Part 2: Forms of products* (MOD)

ISO 6361-1:1986 *Wrought aluminium and aluminium alloy sheets, strips and plates—Part 1: Technical conditions for inspection and delivery* (MOD)

ISO 6361-2:1990 *Wrought aluminium and aluminium alloy sheets, strips and plates —Part 2: Mechanical properties* (MOD)

ISO 6361-3:1985 *Wrought aluminium and aluminium alloy sheets, strips and plates —Part 3: Strips—Tolerances on shape and dimensions* (MOD)

ISO 6361-4:1988 *Wrought aluminium and aluminium alloy sheets, strips and plates—Part 4: Sheets and plates—Tolerances on form and dimensions* (MOD)

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*

Remarks : **ISO 2107**:1983 *Aluminium, magnesium and their alloys—Temper designation* is equivalent to the said standard.

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 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 *Method for determination of gallium in aluminium and aluminium alloys*

JIS Z 2201 *Test pieces for tensile test for metallic materials*

Remarks : **ISO 6892**:1984 *Metallic materials—Tensile testing* is equivalent to the said standard.

JIS Z 2204 *Bend test pieces for metallic materials*

JIS Z 2241 *Method of tensile test for metallic materials*

Remarks : **ISO 6892**:1984 *Metallic materials—Tensile testing* is equivalent to the said standard.

JIS Z 2248 *Method of bend test for metallic materials*

3 Definitions For main terms used in this Standard, the following definitions apply.

a) **clad plate** a plate of which the base material (a plate constituting the base plate) is clad on all the surface with a sheet of a different kind alloy by a method such as pressure welding or the like

b) **plate** a rolled material of a rectangular cross-section supplied in straight lengths usually with slit, sheared or sawn edges

c) **strip** a rolled product of rectangular cross-section supplied in coils usually with slit edges

d) **disk** a disk-like plate manufactured by cutting a plate or a strip generally by pressing or by shearing

4 Grade, class and symbol The grade, class and symbol shall be as shown in table 1.

Table 1 Grade, class and symbol

Grade	Class	Symbol	Informative reference
Alloy No.			Characteristics and examples of application
1085	—	A 1085 P	Being pure aluminium, low strength but excellent in formability, weldability and corrosion resistance.
1080	—	A 1080 P	
1070	—	A 1070 P	
1050	—	A 1050 P	For reflection plates, lighting fixtures, ornaments, tanks for chemical industry, conductive materials and others.
1050 A	—	A 1050 AP	An alloy having a slightly higher strength than that of 1050.
1060	—	A 1060 P	Pure aluminium for conductors having high electrical conducting property. For bus bar and others.
1100	—	A 1100 P	Relatively low strength but excellent in formability, weldability and corrosion resistance. For general vessels, architectural materials, electric appliances, various containers, printing boards and others.
1200	—	A 1200 P	
1N00	—	A 1N00 P	Slightly higher strength and superior formability than that of 1100. For daily necessaries and others.
1N30	—	A 1N30 P	Excellent ductility and corrosion resistance. For aluminium foil and others.
2014	—	A 2014 P	A high strength heat-treated alloy. In the case of clad plate, 6003 is laminated on the surface to improve corrosion resistance. For materials for airplanes, various construction materials and others.
	—	A 2014 PC	
2014 A	—	A 2014 AP	A heat-treated alloy slightly lower strength than that of 2014.
2017	—	A 2017 P	Heat-treated alloy. High strength and good machinability9ˆ For materials for airplanes, various construction materials and others.
2017A	—	A 2017 AP	An alloy having a higher strength than that of 2017.
2219	—	A 2219 P	High strength and excellent in heat resistance and weldability. For equipment of aircrafts and spacecrafts and others.
2024	—	A 2024 P	Higher strength than that of 2017 and excellent in machinability. Clad plate has an improved corrosion resistance by laminating 1230 on the surface. For materials for airplane, various construc-tion materials and others.
	—	A 2024 PC	
3003	—	A 3003 P	Slightly higher strength than that of 1100 and excellent in formability, weldability and corrosion resistance. For general vessels, architectural materials, materials for ships, materials for fins, various containers and others.
3103	—	A 3103 P	
3203	—	A 3203 P	
3004	—	A 3004 P	Higher strength than that of 3003, excellent in formability and good in corrosion resistance. For beverage cans, roofplates, materials for door panels, coloured aluminium, lamp socket, and others.
3104	—	A 3104 P	
3005	—	A 3005 P	Higher strength than that of 3003, excellent in corrosion resistance. For architectural materials, coloured aluminium and others.
3105	—	A 3105 P	Slightly higher strength than that of 3003, excellent in formability and corrosion resistance. For architectural materials, coloured aluminium, caps and others.