

KES

Aluminium and Aluminium
Alloy Sheet and Plates

KES B-F001

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1. Scope of Application

This standard specifies the aluminum and aluminium alloy sheets and plates (Hereinafter referred to as "sheet").

2. Kind and Symbol

The kind and symbol of the sheet shall be classified as shown in Table 1.

Table 1

Kind	Division	Characteristics of alloy	Main usage	Symbol
1050	Pure aluminium series, non-heat treatment type	Good corrosive-resistance, heat - resistance, electric conductivity and Easy forming	For radiators and electric conductor	A1050P
1100	Pure aluminium series, non-heat treatment type	Good forming, weldability, corrosive - resistance, surface treatment and a little more good heat conductivity and electric conductivity than those of other alloys	For heat exchanger components, tools for home use, storage tank, chemical instrument and structural ornament pieces.	A1100P
3003	Al-Mn series non-heat treatment type	Good corrosive-resistance, forming and workability and easy welding and condition of heat treatment equal to that of kind 1100, but anode oxide is thick and its color tone seems like yellow or brown	For heat exchanger components, tools for home use storage tank, chemical instrument and structural ornament pieces.	A3003P
2036	Al-Cu series heat treatment type	Alloys for automobile bodys	For automobile body and seat	A2036P
5020	Al-Mg series heat treatment type	Good mechanical properties		A5020P
5052	Al-Mg series non-heat treatment type	Good corrosive-resistance and forming Rod 0 have relatively high strength Applied to weld material generally used as general material having medium strength	For vehicle, container, structure, chemical instrument, fuel storage tank, low temperature instrument and ware	A5052P
6061	Al-Mg-Si series Heat treatment type	Good corrosive resistance and weldability	For truck body and container	A6061P

Remark: The symbol indicating the kind of temper (1) shall be suffixed to the kind symbol in above table.

Note (1): The kind of temper shall conform to KS D 0004 (Temper symbol of aluminium and aluminium alloy).

3. Chemical Element

The chemical elements of each kind of sheet shall be as shown in Table 2.

Table 2

Kind	Chemical element									
	Cu	Si	Fe	Mn	Mg	Zn	Cr	Ti (2)	Others	Al
1050	≤ 0.05	≤ 0.25	≤ 0.40	≤ 0.05	≤ 0.05	≤ 0.05	—	≤ 0.03	—	≥ 99.50
	0.05 ~ 0.20			≤ 0.05	—		—	—	≤ 0.15	≤ 99.00
	2.2 ~ 3.0			0.10 ~ 0.40	0.30 ~ 0.6		≤ 0.10	≤ 0.15		
	0.05 ~ 0.20			1.0 ~ 1.5	—		—	—		
	1.3 ~ 1.9			0.10 ~ 0.50	2.4 ~ 3.2		≤ 0.20	≤ 0.10		
	≤ 0.10			≤ 0.10	2.2 ~ 2.8		0.15 ~ 0.35	—		
	0.15 ~ 0.40			≤ 0.15	0.8 ~ 1.2		0.04 ~ 0.35	≤ 0.15		

Note (2): The elements not specified shall be analysed only when they are considered to exceed the specified range.

4. Mechanical Element

The mechanical element of the sheet shall be as shown in Table 3.

Table 3

Symbol	Tensile test				Bendint test	
	Thickness (mm)	Tensile strength kgf/mm ² (N/mm ²)	Yield strength kgf/mm ² (N/mm ²)	Elongation (%)	Bending angle	Inner radius
A1050-O	0.2 ≤ t < 0.3	7~10 (69~98)	————	≥ 15	180°	closely adhered
	0.5 ≤ t < 0.8		————	≥ 20		
	0.8 ≤ t < 1.3		≥ 2 (≥ 20)	≥ 25		
	1.3 ≤ t < 3		≥ 2 (≥ 20)	≥ 30		
A1050P-H12	0.2 ≤ t < 0.3	9~13 (88~127)	————	≥ 2	180°	closely adhered
A1050P-H22	0.3 ≤ t < 0.5		————	≥ 3		
	0.5 ≤ t < 0.8		————	≥ 4		0.5t
	0.8 ≤ t < 1.3		≥ 6 (≥ 59)	≥ 6		
A1050P-H14 A1050P-H24	1.3 ≤ t < 3	10~14 (98~137)	≥ 6 (≥ 59)	≥ 8	180°	0.5t
	0.2 ≤ t < 0.3		————	≥ 1		
	0.3 ≤ t < 0.5		————	≥ 2		
	0.5 ≤ t < 0.8		————	≥ 3		
	0.8 ≤ t < 1.3		≥ 7 (≥ 69)	≥ 4		1.0t
	1.3 ≤ t < 3		≥ 7 (≥ 69)	≥ 5		
A1050P-H16 A1050P-H26	0.2 ≤ t < 0.3	12~16 (118~157)	————	≥ 1	180°	2.0t
	0.3 ≤ t < 0.5		————	≥ 1		
	0.5 ≤ t < 0.8		————	≥ 2		
	0.8 ≤ t < 1.3		≥ 8 (≥ 78)	≥ 3		
	1.3 ≤ t < 3		≥ 8 (≥ 78)	≥ 4		
A1050P-H18	0.2 ≤ t < 0.3	≥ 14 (≥ 137)	————	≥ 1		
	0.3 ≤ t < 0.5			≥ 1		
	0.5 ≤ t < 0.8			≥ 2		
	0.8 ≤ t < 1.3			≥ 3		
	1.3 ≤ t < 3			≥ 4		
A1050P-R	6 ≤ t < 12	≥ 8 (≥ 78)	≥ 5 (≥ 49)	≥ 10		
	12 ≤ t < 25	≥ 7 (≥ 69)	≥ 4 (≥ 39)	≥ 16		
	25 ≤ t < 50	≥ 6 (≥ 59)	≥ 3 (≥ 29)	≥ 22		

- Remarks 1. The tensile test shall be performed with the No.5 test piece with thickness of 20mm or less or the No. 4 test piece with thickness of 20mm or more
2. The upper limit of tensile strength and the yield strength shall not be applied to the sheet with temper kind of H22, H24 and H26.