TECHNICAL DATA SHEET

PRODUCT: 6061 ALUMINUM ALLOY COIL / SHEET

Aluminum 6061 is a precipitation-hardened aluminum alloy, containing magnesium and silicon as its major alloying elements. Originally called "Alloy 61S", it was developed in 1935. It has good mechanical properties, exhibits good weldability, and is very commonly extruded (second in popularity only to 6063). It is one of the most common alloys of aluminum for general-purpose use. This alloy is not suitable for decorative anodizing.

PRODUCT BASIC INFORMATION:

Alloy:	**6061**	
Form:	Sheet, Coil	
Temper:	O, T4, T6	
Dimension:	Thickness:	0.5mm to 6.0mm
	Width:	20.0mm to 2,000mm
	Length:	1,000mm to 4,000mm, or Coil
Surface Finish:	Mill Finish	
Standard Specification:	GB/T 3880, ASTM B209, EN 485	
Application:	General Use	

CHEMICAL COMPOSITION:

Element		Percentage (%)
Aluminum	**(Al)**	Remainder
Silicon	**(Si)**	0.40~0.8
Iron	**(Fe)**	0.70 max
Copper	**(Cu)**	0.15~0.40
Manganese	**(Mn)**	0.15 max
Magnesium	**(Mg)**	0.8~1.2
Chromium	**(Cr)**	0.04~0.35
Zinc	**(Zn)**	0.25 max
Titanium	**(Ti)**	0.15 max
Remainder Each		0.05 max
Remainder Total		0.15 max

MECHANICAL PROPERTIES:

		O	T4	T6
Ultimate Strength Rm/MPa		≤150	≥ 205	≥ 290
Yield Strength Rp0.2/MPa		≤85	≥ 110	≥ 240
Elongation Min. %	≥ 0.5~1.5mm	≥ 14%	≥ 12%	≥ 6%
	≥ 1.5~3.0mm	≥ 16%	≥ 14%	≥ 7%
	≥ 3.0~6.0mm	≥ 19%	≥ 16%	≥ 10%
Bend Radius (90°)	≥ 0.5~1.5mm	0.5t	1.0t	2.5t
	≥ 1.5~3.0mm	1.0t	1.5t	3.5t
	≥ 3.0~6.0mm	1.0t	3.0t	4.0t

PHYSICAL DATA :

Density (20°C):	2,700	kg/m^3
Melting Point:	582°C	
Thermal Expansion (20°C ~100°C):	23.6 $x10^{-6}$	/K
Modulus of Elasticity:	68.9	GPa
Thermal conductivity (Temper O):	180	W·m-1·K-1
Electrical Resistivity (Temper O):	0.037 $x10^{-6}$	Ω .m
Conductivity (Temper O):	47	%IACS
Magnetic performance:	No	
Color:	Silver	
Odour:	No	

TOLERANCE ON FORMS AND DIMENSIONS:

Thickness Tolerance:	**Thickness**	**Width**			
		≤1000mm	>1000~1250mm	>1250~1600mm	>1600~2000mm
	≥ 0.5~0.6mm	± 0.03mm	± 0.05mm	± 0.06mm	± 0.07mm
	> 0.6~0.8mm	± 0.03mm	± 0.06mm	± 0.07mm	± 0.08mm
	> 0.8~1.0mm	± 0.04mm	± 0.06mm	± 0.08mm	± 0.09mm
	> 1.0~1.2mm	± 0.04mm	± 0.07mm	± 0.09mm	± 0.10mm
	> 1.2~1.5mm	± 0.05mm	± 0.09mm	± 0.10mm	± 0.11mm
	> 1.5~1.8mm	± 0.06mm	± 0.10mm	± 0.11mm	± 0.12mm
	> 1.8~2.0mm	± 0.06mm	± 0.11mm	± 0.12mm	± 0.14mm
	> 2.0~2.5mm	± 0.07mm	± 0.12mm	± 0.13mm	± 0.15mm
	> 2.5~3.0mm	± 0.08mm	± 0.13mm	± 0.15mm	± 0.17mm
	> 3.0~3.5mm	± 0.10mm	± 0.15mm	± 0.17mm	± 0.18mm
	> 3.5~4.0mm	± 0.15mm	± 0.20mm	± 0.22mm	± 0.23mm
	> 4.0~5.0mm	± 0.18mm	± 0.22mm	± 0.24mm	± 0.25mm
	> 5.0~6.0mm	± 0.20mm	± 0.24mm	± 0.25mm	± 0.26mm

Width Tolerance:	Thickness	Width				
		≤300mm	>300~500mm	>500~1250mm	>1250~1650mm	>1650mm
	≥ 0.2~0.6mm	+ 0.4mm	+ 0.6mm	+ 1.5mm	+ 2.5mm	+ 3.0mm
	> 0.6~1.0mm	+ 0.5mm	+ 1.0mm	+ 1.5mm	+ 2.5mm	+ 3.0mm
	> 1.0~2.0mm	+ 0.7mm	+ 1.2mm	+ 2.0mm	+ 2.5mm	+ 3.0mm
	> 2.0~3.0mm	+ 1.0mm	+ 1.5mm	+ 2.0mm	+ 2.5mm	+ 4.0mm
	> 3.0~6.0mm	+ 1.5mm	+ 2.0mm	+ 3.0mm	+ 3.0mm	+ 5.0mm

Length Tolerance:	Thickness	Length			
		≤1000mm	>1000~2000mm	>2000~3000mm	>3000mm
	≥ 0.2~3.0mm	+ 3mm	+ 4mm	+ 6mm	+ 8mm
	> 3.0~6.0mm	+ 4mm	+ 6mm	+ 8mm	+ 10mm

Flatness Tolerance:	Thickness	Total Deviation		
		On Length	On Width	Partial Deviation
	≥ 0.2~0.5mm	By agreement	By agreement	By agreement
	> 0.5~3.0mm	≤ 0.4%	≤ 0.5%	≤ 0.5%
	> 3.0~6.0mm	≤ 0.3%	≤ 0.4%	≤ 0.4%

Lateral Curvature Tolerance:	Width	Lateral Curvature for Specified Length			
		≤1000mm	>1000~2000mm	>2000~3500mm	>3500mm
	≤300mm	≤ 2.0mm	≤ 4.0mm	≤ 8.0mm	-
	>300~600mm	≤ 1.5mm	≤ 3.0mm	≤ 5.0mm	-
	>600~1000mm	≤ 1.0mm	≤ 2.0mm	≤ 4.0mm	≤ 5.0mm
	>1000~2000mm	-	≤ 2.0mm	≤ 4.0mm	≤ 5.0mm
	>2000mm	-	-	≤ 4.0mm	≤ 5.0mm

Squareness Tolerance:	Length	Squareness Tolerance for Specified Width			
		≤1000mm	>1000~1500mm	>1500~2000mm	>2000mm
	≤1000mm	≤ 4.0mm	-	-	-
	>1000~2000mm	≤ 4.0mm	≤ 5.0mm	≤ 6.0mm	-
	>2000~3000mm	≤ 5.0mm	≤ 5.0mm	≤ 7.0mm	≤ 8.0mm
	>3000~5000mm	≤ 6.0mm	≤ 8.0mm	≤ 8.0mm	≤ 10.0mm

OTHER PROPERTIES:

Principal Design Features	Probably the most commonly available, heat treatable aluminum alloy.
Machinability	Machinability in the harder T4 and T6 tempers is good. It is notably less easy to machine in the annealed temper.
Forming	Easily cold worked and formed in the annealed condition. Stamping, bending, spinning, deep drawing are all readily accomplished using standard methods.

Weldability	The alloy has very good welding characteristics and may be welded by all of the common welding techniques. Gas tungsten arc welding is generally used for thin sections (less than 0.032") and gas metal arc welding is used for heavier sections. Use alloy 4043 filler wire for best results, although a decrease in T 6 properties will result.
Heat Treatment	Solution heat treat at 532°C for adequate time to allow for thorough heating and then water quench. Precipitation hardening is done at 160°C for 18 hours and air cool, followed by 177°C for 8 hours and air cooling.
Hot Working	Hot working may be done in the temperature range of 260°C to 371°C.
Cold Working	Cold working in the O temper condition is readily performed. The alloy is notably less easy to cold form in the T4 and T6 tempers.
Annealing	Annealing should be done at 413°C for 2 to 3 hours followed by controlled cooling at 10°C per hour down to 260°C, then air cool.
Aging	The aging precipitation heat treatment is done at 177°C for 8 hours followed by air cooling. This produces the T6 temper.
Hardening	See "Aging".

APPLICATIONS

Typical Applications	Commonly used in the manufacture of heavy-duty structures requiring good corrosion resistance, truck and marine components, railroad cars, furniture, tank fittings, general structural and high pressure applications, wire products, and in pipelines.

PACKAGING, HANDING & STORAGE:

Package:	Packed in waterproof Kraft, fastened by steel straps on wood pallets, suitable for handling, loading and unloading from the trunks or containers, suitable for export ocean forwarding.
Handling:	Prevent the goods hurting the people who are moving, loading, unloading, especially pay attention to the rolling and dropping for the coils.
Storage:	Stored in indoor area on plain floor, free away from moisture, water, snow, animal oils and dye wastes, avoid storing with acid or basic chemical goods.