

TECHNICAL DATA SHEET (TDS)

PRODUCT: 1060 ALUMINUM ALLOY COIL / SHEET

1060 aluminum alloy is an aluminum-based alloy in the "commercially pure" wrought family (1000 or 1xxx series). It is fundamentally very similar to 1050 aluminum alloy, with the difference coming down to 0.1% aluminum by weight. However, while both 1050 and 1060 are covered by the same ISO standard, they are covered by different ASTM standards. As a wrought alloy, it is typically formed by extrusion or rolling. It is commonly used in the electrical and chemical industries, on account of having high electrical conductivity, corrosion resistance, and workability. It has low mechanical strength compared to more significantly alloyed metals. It can be strengthened by cold working, but not by heat treatment.

PRODUCT BASIC INFORMATION:

Alloy:	1060	
Form:	Sheet, Coil	
Temper:	O, H14, H24, H18	
Dimension:	Thickness:	0.20mm to 6.0mm
	Width:	20.0mm to 2,600mm
	Length:	1,000mm to 4,000mm, or Coil
Surface Finish:	Mill Finish	
Standard Specification:	GB/T 3880, ASTM B209	
Application:	General Use	

CHEMICAL COMPOSITION:

Element		Percentage (%)
Aluminum	(Al)	99.60 min
Silicon	(Si)	0.25 max
Iron	(Fe)	0.35 max
Copper	(Cu)	0.05 max
Manganese	(Mn)	0.03 max
Magnesium	(Mg)	0.03 max
Chromium	(Cr)	-
Zinc	(Zn)	0.05 max
Titanium	(Ti)	0.03 max
Vanadium	(V)	0.05 max
Remainder Each		0.03 max
Remainder Total		-

MECHANICAL PROPERTIES:

		O	H14	H24	H18
Ultimate Strength Rm/MPa		60~100	95~135	95~135	≥ 125
Yield Strength Rp0.2/MPa		≥ 15	≥ 70	≥ 70	≥ 85
Elongation Min. %	≥ 0.2~0.3mm	≥ 15%	≥ 1%	≥ 1%	≥ 1%
	≥ 0.3~0.5mm	≥ 18%	≥ 2%	≥ 2%	≥ 2%
	≥ 0.5~0.8mm	≥ 23%	≥ 2%	≥ 2%	≥ 3%
	≥ 0.8~1.5mm	≥ 23%	≥ 4%	≥ 4%	≥ 3%
	≥ 1.5~3.0mm	≥ 25%	≥ 6%	≥ 6%	≥ 4%
	≥ 3.0~6.0mm	≥ 25%	≥ 10%	≥ 10%	-
Bend Radius (90°)	≥ 0.2~6.0mm	-	-	-	-

PHYSICAL DATA :

Density (20°C):	2,705	kg/m ³
Melting Point:	646°C	
Thermal Expansion (20°C ~100°C):	23.6 x10 ⁻⁶	/K
Modulus of Elasticity:	69	GPa
Thermal conductivity (Temper O):	234	W·m-1·K-1
Electrical Resistivity (Temper O):	0.0278 x10 ⁻⁶	Ω .m
Conductivity (Temper O):	62	%IACS
Magnetic performance:	No	
Color:	Silver	
Odour:	No	

TOLERANCE ON FORMS AND DIMENSIONS :

Thickness Tolerance:	Thickness	Width			
		≤1000mm	>1000~1250mm	>1250~1600mm	>1600~2000mm
	≥ 0.2~0.4mm	± 0.02mm	± 0.04mm	± 0.05mm	-
	> 0.4~0.5mm	± 0.03mm	± 0.04mm	± 0.05mm	± 0.06mm
	> 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
	> 2.0~3.0mm	± 0.07mm	± 0.12mm	± 0.13mm	± 0.15mm
	> 3.0~4.0mm	± 0.10mm	± 0.15mm	± 0.17mm	± 0.18mm
	> 4.0~6.0mm	± 0.18mm	± 0.22mm	± 0.24mm	± 0.25mm

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

This is a relatively low strength, essentially pure aluminum, alloy. It is noted for excellent welding characteristics and formability along with good corrosion resistance. It cannot be hardened by heat treatment.

Machinability

The machinability of 1060 is fair to poor, especially in the soft temper conditions. In the harder (cold worked) tempers such as H16 and H18 the machining characteristics are improved. Either carbide or high-speed steel tooling may be used and use of lubricants is recommended, although some cutting may be done dry.

Forming	This alloy has excellent forming capability by cold or hot working with commercial techniques.
Weldability	AL 1060 may be welded by standard commercial methods. If filler rod is required it should be of AL 1060. A precaution should be noted for the use of resistance welding as by this method some trial and error experimentation may be required to obtain good results.
Heat Treatment	A non-heat treatable alloy.
Hot Working	The hot working range (as for forging) is 260°C to 510°C. In that range the alloy is easily hot worked.
Cold Working	The cold working characteristics of AL 1060 are excellent. It can readily be cold worked by all conventional methods.
Annealing	Annealing, during or following cold working, is done at 350°C to 450°C, allowing adequate time for thorough heating, followed by air cooling.
Aging	Not applicable to this alloy.
Hardening	The alloy hardens only from cold working. Tempers H12, H14, H16, H18 are determined by the amount of cold working imparted into the alloy.

APPLICATIONS

Typical Applications	Based on its characteristics, 1060 aluminum alloy is widely used for products which have lower requirement for strength, such as reflector, billboard, decoration, kitchen wares, lamp holder, electric elements, and chemical equipment. And also because of the strong corrosion resistance characteristics, it can be used for the chemical storage, railroad tank cars and other equipment.
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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.

The above mentioned aluminum product is produced according to national standard specifications, and has no poison, no pollution, and no cauterization. It is common industry metal material.

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