



TECHNICAL DATA SHEET

PRODUCT: A95050 ALUMINUM ALLOY PLATE / SHEET

Aluminum 5050 alloy is a wrought type alloy with good resistance to many environmental conditions and corrosion. It has excellent workability and durability. This alloy is used in multiple industries to manufacture a wide range of components.

PRODUCT BASIC INFORMATION:

Alloy:	5050
Form:	Sheet, plate
Temper:	O, H22, H32, H24, H34, H28, H38
Dimension:	Thickness: 0.50mm 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 573
Application:	General Use

CHEMICAL COMPOSITION:

Element		Percentage (%)
Aluminum	(Al)	Remainder
Silicon	(Si)	0.40 max
Iron	(Fe)	0.70 max
Copper	(Cu)	0.20 max
Manganese	(Mn)	0.10 max
Magnesium	(Mg)	1.1~1.8
Chromium	(Cr)	0.10 max
Zinc	(Zn)	0.25 max
Titanium	(Ti)	-
Remainder Each		0.05 max
Remainder Total		0.15 max

MECHANICAL PROPERTIES:

		O	H22/H32	H24/H34	H28/H38
Ultimate Strength Rm/MPa		124	125~165	145~185	≥ 185
Yield Strength Rp0.2/MPa		≥ 41	≥ 80	≥ 110	≥ 160
Elongation Min. %	≥ 0.5~1.5mm	≥ 8%	≥ 5%	≥ 4%	≥ 2%
	≥ 1.5~3.0mm	≥ 10%	≥ 6%	≥ 5%	≥ 3%
	≥ 3.0~6.0mm	≥ 12%	≥ 8%	≥ 6%	-
Bend Radius (90°)	≥ 0.5~1.5mm	0t	0.5t	1.0t	2.5t
	≥ 1.5~3.0mm	0t	1.0t	1.0t	3.0t
	≥ 3.0~6.0mm	1.0t	1.0t	2.0t	-

PHYSICAL DATA :

Density (20°C):	2,69	kg/m ³
Melting Point:	654°C	
Thermal Expansion (20°C ~100°C):	23.6 x10 ⁻⁶	/K
Modulus of Elasticity:	70 - 80	GPa
Thermal conductivity (Temper O):	191	W·m-1·K-1
Electrical Resistivity (Temper O):	0.033 x10 ⁻⁶	Ω .m
Conductivity (Temper O):	50	%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	This is a non-heat treatable alloy of aluminum with magnesium content. Cold working will strengthen (harden) the alloy and it is very good in both corrosion resistance and weldability.
Machinability	The overall machinability of this alloy is considered as fair, especially in the annealed condition. In the cold worked conditions, the machinability is improved over that of the annealed material. Use of proper lubricants during machining is advised.
Forming	No data, although the alloy is considered forgeable - consult the alloy supplier.

Weldability	All of the commercial welding methods may be used satisfactorily with this alloy. Brazing, after experimental trials to develop parameters, is also possible.
Heat Treatment	The wear resistance and strength of aluminum 5050 alloy can be improved using UNS A95050 heat treatment. This method employs high temperatures for a short period of time and is comparable to annealing. The material's microstructure is changed, enhancing its resistance to fatigue cracking and corrosion.
Hot Working	The alloy can be hot worked in the temperature range of 700 to 400 °F.
Cold Working	Cold working characteristics are very good, especially in the annealed temper. Bend radii of zero to 1/2 thickness are possible for sheet material up to 1/8" thick.
Annealing	Annealing, if required because of extensive cold working, may be done at 650 °F followed by air cooling.
Aging	Not applicable to this alloy.
Hardening	Cold working will harden this alloy to the various H tempers, depending upon the degree (or amount) of cold worked strain imparted.

APPLICATIONS

Typical Applications

Due to its versatility, aluminum 5050 alloy is used in a wide range of applications. One of its primary uses is in the automotive industry, where it finds application as a lightweight alloy for components such as hoods and doors. An eminently workable material, aluminum 5050 is a popular alloy in the manufacturing industry, where it is worked into products with varying shapes and sizes. Its malleability, strength, and, importantly, cost-effectiveness makes it a premier choice for low-cost and high-quality components.

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.

