

TECHNICAL DATA SHEET (TDS)

PRODUCT: 5005 ALUMINUM ALLOY COIL / SHEET

5005 aluminum alloy is a 5000-series aluminum alloy, and it is a non-heat treatable alloy with small amount of magnesium content. It is formulated for primary forming into wrought products. It is not used in casting. It can attain moderate to high strength by cold working. It has very good resistance to atmospheric corrosion and very good weldability that is highly suitable for decorative anodizing, and has relatively high welded strength compared to other aluminum alloy families.

PRODUCT BASIC INFORMATION:

Alloy:	5005	
Form:	Sheet, Coil	
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 485	
Application:	General Use	

CHEMICAL COMPOSITION:

Element		Percentage (%)
Aluminum	(Al)	Remainder
Silicon	(Si)	0.30 max
Iron	(Fe)	0.70 max
Copper	(Cu)	0.20 max
Manganese	(Mn)	0.20 max
Magnesium	(Mg)	0.50~1.1
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		100~145	125~165	145~185	≥ 185
Yield Strength Rp0.2/MPa		≥ 35	≥ 80	≥ 110	≥ 160
Elongation Min. %	≥ 0.5~1.5mm	≥ 19%	≥ 5%	≥ 4%	≥ 2%
	≥ 1.5~3.0mm	≥ 20%	≥ 6%	≥ 5%	≥ 3%
	≥ 3.0~6.0mm	≥ 22%	≥ 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):	2,700	kg/m ³
Melting Point:	632°C	
Thermal Expansion (20°C ~100°C):	23.7 x10 ⁻⁶	/K
Modulus of Elasticity:	68.2	GPa
Thermal conductivity (Temper O):	205	W·m-1·K-1
Electrical Resistivity (Temper O):	0.033 x10 ⁻⁶	Ω .m
Conductivity (Temper O):	52	%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 machinability is generally poor, especially in the soft temper conditions. Machining in the harder tempers, such as H34, H38, is better than in the soft temper condition.

Forming Formability by all of the conventional methods is excellent, especially in the softer tempers.

Weldability	This alloy is noted for excellent welding characteristics by all of the commercial methods. Filler metal of the same alloy should be used. Welding by resistance technique of the O (or annealed) temper material may require some trial and error determination of the best technique.
Heat Treatment	This alloy does not respond to heat treatment, except for annealing to relieve cold working strain. See "Annealing".
Hot Working	This alloy has excellent cold working characteristics such that hot working should not normally be necessary. However it may be hot worked in the temperature range of 204°C to 371°C.
Cold Working	Excellent cold working conditions, even in the harder tempers. In the soft temper condition sheet product may be bent to radii of zero to 1/2 thickness on material up to 1/8" thick - over 1/8" bend radii of 1 to 2 T are possible.
Annealing	Annealing, if required, may be done at 343°C followed by air cooling.
Aging	Not applicable to this alloy.
Hardening	Only cold working will cause hardening (strengthening) of this alloy as it does not harden by heat treatment.

APPLICATIONS

Typical Applications	Commonly used in the manufacture of appliances, small boats, gas lines, refrigerator panels, roofing, cladding, corrugated sheet, signage, road signs & name plates, food & chemical equipment, furniture, anodized parts, HVAC equipment, packaging, pipe and tube, can bodies and utensils. 5005 is also used in architectural components, and as an electrical conductor. Especially useful where excessive finishing costs are encountered in the use of 3003 alloys due to surface roughness upon drawing.
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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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