

TECHNICAL DATA SHEET (TDS)

PRODUCT: 3105 ALUMINUM ALLOY COIL / SHEET

3105 aluminum is a 3000-series aluminum alloy: the main alloying addition is manganese, and it is formulated for primary forming into wrought products. It is essentially a 98% aluminum alloy with minor additions to increase strength over that of alloy 1100 and 3003. It is not harden able by heat treatment and it has good corrosion resistance, formability and weldability. It is most commonly used where a painted finish is desired. Typical applications include general sheet metal work requiring greater strength than is provided by 1000 series aluminum alloys, residential siding, mobile homes and sign making.

PRODUCT BASIC INFORMATION:

Alloy:	3105	
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, EN 485	
Application:	General Use	

CHEMICAL COMPOSITION:

Element		Percentage (%)
Aluminum	(Al)	Remainder
Silicon	(Si)	0.6 max
Iron	(Fe)	0.7 max
Copper	(Cu)	0.3 max
Manganese	(Mn)	0.3~0.8
Magnesium	(Mg)	0.2~0.8
Chromium	(Cr)	0.2 max
Zinc	(Zn)	0.4 max
Titanium	(Ti)	0.1 max
Remainder Each		0.05 max
Remainder Total		0.15 max

MECHANICAL PROPERTIES:

		O	H14	H24	H18
Ultimate Strength Rm/MPa		100~155	150~200	150~200	≥ 195
Yield Strength Rp0.2/MPa		≥ 40	≥ 130	≥ 120	≥ 180
Elongation Min. %	≥ 0.2~0.5mm	≥ 14%	≥ 2%	≥ 4%	≥ 1%
	≥ 0.5~1.5mm	≥ 15%	≥ 2%	≥ 4%	≥ 1%
	≥ 1.5~3.0mm	≥ 17%	≥ 2%	≥ 5%	≥ 1%
	≥ 3.0~6.0mm	-	-	-	-
Bend Radius (90°)	≥ 0.2~0.5mm	0t	2.5t	2.5t	-
	≥ 0.5~1.5mm	0t	2.5t	2.5t	-
	≥ 1.5~3.0mm	0.5t	2.5t	2.5t	-
	≥ 3.0~6.0mm	0.5t	2.5t	2.5t	-

PHYSICAL DATA :

Density (20°C):	2,720	kg/m ³
Melting Point:	638°C	
Thermal Expansion (20°C ~100°C):	23.6 x10 ⁻⁶	/K
Modulus of Elasticity:	69	GPa
Thermal conductivity (Temper O):	173	W·m-1·K-1
Electrical Resistivity (Temper O):	0.0383 x10 ⁻⁶	Ω .m
Conductivity (Temper O):	45	%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 an essentially 98% pure aluminum alloy with minor additions for strength. It is not hardenable by heat treatment. Corrosion resistance, formability and welding characteristics are excellent.
Machinability	Machinability of AL 3105 is fair. Oil lubricants should be used for all machining operations. Machinability of the alloy when in the harder (H) tempers is improved over machining in the annealed (O) condition.
Forming	The forming characteristics of the alloy are very good by all conventional processes regardless of temper. Bend radii should be in the one thickness to

	2 t range for annealed, H12, H14 and H16 tempers. The H18 temper requires bend radii of 2 to 7 t, depending upon thickness of the material.
Welding	Weldability of this alloy is excellent by all commercial techniques. Arc welding is preferred for the best results.
Heat Treatment	A non-heat treatable alloy.
Hot Working	The hot working range (as for forging) is 205°C to 372°C. In that range the alloy is easily hot worked.
Cold Working	The cold working characteristics of AL 3105 are very good, even in the harder cold worked tempers. Bend radii for sheet up to 1/16" thick vary from 1/2 to one t for all tempers.
Annealing	Annealing from a cold worked condition may be accomplished at 345°C followed by air cooling.
Aging	Not applicable to this alloy.
Hardening	Hardens as a result of cold working only.

APPLICATIONS

Typical Applications	Aluminum 3105 is most commonly used where a painted finish is desired. Typical applications include general sheet metal work requiring greater strength than is provided by 1000 series aluminum alloys, residential siding, room partition, baffle, mobile homes, rain carrying goods and sign making.
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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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