TECHNICAL DATA SHEET

PRODUCT: A92017 ALUMINUM ALLOY PLATE

Aluminum 2017 is an ideal choice for many different industries due to its wide range of beneficial qualities, including its lightweight yet durable construction, excellent corrosion resistance and impressive heat resistance capabilities, which make it suitable for use in extreme temperatures up to 600°C (1120°F). Its ease of machining and welding makes it even more attractive for manufacturing complex parts or components that need precise tolerances or strong welds. With all these advantages and its relatively low cost compared to other metals like steel or titanium alloys, there's no wonder why Aluminum2017 is becoming increasingly popular!

PRODUCT BASIC INFORMATION:

Alloy:	**2017**	
Form:		Foils, Coils, Rolls, Strip, Checkered Plate, Flats, Circle, Blank, Ring (Flange) etc.
Temper:	--	H34, H24, T4, F, T5, H14, H22, H36, H18, H19, T851 T451, H26, T3, T351, H32, H112, H16, O, T7, H321, T651, T6, H111, H12, H38,
Dimension:	Thickness: Width: Length:	0.2-300 mm
Surface Finish:		polished, Bright, hair line, sand blast, brush, checkered, etching, embossed, etc.
Standard Specification:	UNS A92017 - ASTM B211 and ASTM B316	
Application:	General Use	

CHEMICAL COMPOSITION:

Element		**Percentage (%)**
Aluminum	**(Al)**	Balance
Silicon	**(Si)**	0.20 - 0.80
Iron	**(Fe)**	0.70 max
Copper	**(Cu)**	3.50 - 4.50
Manganese	**(Mn)**	0.40 – 1.0
Magnesium	**(Mg)**	0.40 – 1.0
Chromium	**(Cr)**	0.10 max
Zinc	**(Zn)**	0.25 max
Zirconium +titanium	**(Zr+Ti)**	0.25 max
Remainder Each		0.05 max
Remainder Total		0.15 max

MECHANICAL PROPERTIES:

Properties	Metric	Imperial
Tensile strength (annealed)	179 MPa	26000 psi
Yield strength (annealed)	69 MPa	10000 psi
Elongation (annealed)	22%	22%
Elastic modulus	72 GPa	10500 ksi
Shear strength (annealed)	124 MPa	18000 psi

PHYSICAL DATA :

Density (20°C):	2.79	kg/m^3
Melting Point:	510°C	
Thermal Expansion (20°C ~100°C):	23.6 $x10^{-6}$	/K
Modulus of Elasticity:	72.0	GPa
Thermal conductivity (Temper O):	193	W/mK
Electrical Resistivity (Temper O):	5.15e-006 ohm-cm	Typical at 68°F
Conductivity (Temper O):	34 – 50	%IACS
Magnetic performance:	No	
Color:	Silver	
Odour:	No	

TOLERANCE ON FORMS AND DIMENSIONS:

Thickness Tolerance:	Thickness	Width			
		≤1250mm	>1250~1600mm	>1600~2000mm	>2000~2500mm
	≥ 6~8mm	± 0.35mm	± 0.40mm	± 0.40mm	± 0.50mm
	> 8~10mm	± 0.45mm	± 0.50mm	± 0.50mm	± 0.55mm
	> 10~15mm	± 0.50mm	± 0.60mm	± 0.65mm	± 0.65mm
	> 15~20mm	± 0.60mm	± 0.70mm	± 0.75mm	± 0.80mm
	> 20~30mm	± 0.65mm	± 0.75mm	± 0.85mm	± 0.90mm
	> 30~40mm	± 0.75mm	± 0.85mm	± 1.00mm	± 1.10mm
	> 40~50mm	± 0.90mm	± 1.00mm	± 1.10mm	± 1.20mm
	> 50~60mm	± 1.10mm	± 1.20mm	± 1.40mm	± 1.50mm
	> 60~80mm	± 1.40mm	± 1.50mm	± 1.70mm	± 1.90mm
	> 80~100mm	± 1.70mm	± 1.80mm	± 1.90mm	± 2.10mm
	> 100~150mm	± 2.10mm	± 2.20mm	± 2.50mm	± 2.60mm

Width Tolerance:	Thickness	Width		
		≤ 1000mm	> 1000~2000mm	> 2000~2500mm
	≥ 6~12mm	+ 6mm	+ 7mm	+ 8mm
	> 12~50mm	+ 6mm	+ 7mm	+ 9mm
	> 50~150mm	+ 8mm	+ 8mm	+ 9mm

Length Tolerance:	Thickness	Length			
		≤ 2000mm	> 2000~3000mm	> 3000~4000mm	> 4000
	≥ 6~150mm	+ 7mm	+ 8mm	+ 9mm	+ 10mm

Flatness Tolerance:	Thickness	Total Deviation %		
		On Length	On Width	Partial Deviation
	≥ 6~50mm	≤ 0.2%	≤ 0.4%	≤ 0.3%
	> 50~150mm	≤ 0.2%	≤ 0.2%	By agreement

Lateral Curvature Tolerance:	Width	Lateral Curvature Tolerance for Specified Length			
		≤ 2000mm	> 2000~3000mm	> 3000~5000mm	> 5000mm
	≤1250mm	≤ 4mm	≤ 7mm	≤ 10mm	≤ 0.2% of Specified Length
	>1250~1500mm	≤ 3mm	≤ 6mm	≤ 8mm	
	>1500~2000mm	≤ 3mm	≤ 6mm	≤ 7mm	
	>2000mm	-	≤ 5mm	≤ 6mm	

Squareness Tolerance:	Length	Squareness Tolerance for Specified Width			
		≤ 1000mm	>1000~1500mm	>1500~2000mm	> 2000mm
	≤2000mm	≤ 6mm	≤ 7mm	≤ 8mm	-
	>2000~3000mm	≤ 7mm	≤ 7mm	≤ 9mm	≤ 10mm
	>3000~3500mm	≤ 7mm	≤ 8mm	≤ 10mm	≤ 10mm
	>3500~5000mm	≤ 8mm	≤ 10mm	≤ 10mm	≤ 12mm
	>5000mm	≤ 12mm	≤ 12mm	≤ 15mm	≤ 15mm

OTHER PROPERTIES:

Principal Design Features	--
Machinability	Aluminum 2017 can be machined using conventional cutting tools without any difficulty due to its softness compared to other materials like steel or titanium alloys. This allows for greater accuracy during machining operations which can help reduce costs by requiring fewer passes with the cutting tool when creating complex parts or components out of this material.
Forming	Conventional methods are used to form, bend and shape Aluminum 2011 alloy. The alloy is age-hardened after being cold-worked in order to improve its strength properties.
Weldability	Aluminum 2017 can be welded using inert metal gas (MIG) welding processes which provide a stronger weld than traditional arc welding processes due to the increased shielding gas protection during welding operations.

Heat Treatment	Heat treatment of aluminum doesn't just involve using a furnace or heating the metal but requires an intricate knowledge of the properties of aluminium. By manipulating temperatures, times and cooling rates, different parts of the aluminum can be processed differently according to desired mechanical qualities. The ability to control the grain structure and size is precious for changing characteristics such as tensile strength or malleability.
Hot Working	--
Cold Working	--
Annealing	Aluminum 2017 alloy can be solution annealed at 504°C (940°F) for 3-4h followed by water quenching. Age hardening is performed at room temperature and this produces the T4 temper. Cold working such as shaping and bending, can be easily performed by using traditional methods. Annealing can be performed at 413°C (775°F) for 3 h and then controlled cooling at 10°C (50°F)/h down to 260°C (500 °F). Finally, it can be air-cooled.
Aging	Aluminum 2017 alloy ages normally at room temperature to produce optimum mechanical properties. Similarly, it is age hard enable at room temperature.
Hardening	--

APPLICATIONS

Typical Applications	Aluminum 2017 alloy is chiefly used in the following products: Screw machine products and fittings - Pulleys and gauges - Coat hangers - Crochet and knitting needles - Rivets - General structural components - Components in the transportation sector – Fasteners - Aircraft 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.