



# TECHNICAL DATA SHEET

## PRODUCT: A96106 ALUMINUM ALLOY PLATE

6106 is a heat-treatable alloy with mechanical properties between 6060 and 6005. It has excellent corrosion resistance, and its good extrudability enables more complex shapes to be extruded than can be produced with 6061 or 6082.

It is an extrusion alloy intended to provide favorable mechanical properties, minimum section thickness, good surface finish, complex shape coupled with good resistance, weldability and formability.

### PRODUCT BASIC INFORMATION:

<b>Alloy:</b>	<b>6106</b>
<b>Form:</b>	Plate
<b>Temper:</b>	O, T4, T6, T651
<b>Dimension:</b>	Thickness: 6.0mm to 150mm Width: 1,000mm to 2,500mm Length: 3,000mm to 10,000mm
<b>Surface Finish:</b>	Mill Finish
<b>Standard Specification:</b>	<b>A96106 - EN-AW 6106</b>
<b>Application:</b>	General Use

### CHEMICAL COMPOSITION:

Element	Percentage (%)
Aluminum (Al)	Remainder
Silicon (Si)	0.30 - 0.60
Iron (Fe)	≤0.35
Copper (Cu)	≤0.25
Manganese (Mn)	0.05 - 0.20
Magnesium (Mg)	0.40 - 0.80
Chromium (Cr)	≤0.20
Zinc (Zn)	≤0.15
Titanium (Ti)	≤0.10
Remainder Each	0.05 max
Remainder Total	0.15 max

**MECHANICAL PROPERTIES:**

Properties	Metric	Imperial
Tensile strength	245 MPa	35534 psi
Proof Stress	200 Min MPa	29000 psi
Elongation	14%	14%
Elastic modulus	69.5 GPa	10080 ksi
Shear strength	170 MPa	24600 psi

**PHYSICAL DATA :**

Density (20°C):	2,700	kg/m <sup>3</sup>
Melting Point:	655°C	
Thermal Expansion	23	µm/m-K
Modulus of Elasticity:	69	GPa
Thermal conductivity (Temper O):	192	W/mK
Electrical Resistivity (Temper O):	0.035 x10 <sup>-6</sup>	Ω .m
Conductivity (Temper O):	49	%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

Aluminum alloy 6106 is an extrusion alloy designed to provide optimum combination of mechanical properties, complexity of shape, minimum section thickness and good surface finish together with the good resistance, weldability and formability associated with the 6000 series alloys. Very complex shapes are possible which are not obtainable with stronger alloys such as 6182. (6000 series alloys achieve their properties by thermal treatment which can be adjusted to provide combinations of strength and formability conditions with good corrosion resistance and weldability. Because the properties are obtained by thermal treatment, fusion welding reduces the non-welded properties by up to 50%).

### Machinability

6106 alloy is easy to machine, so it can be used for various machining operations, such as drilling, milling, turning, etc..

### Weldability

6106 has excellent weldability by all standard methods including GMAW (MIG) and GTAW (TIG). Filler alloy 4043 is the primary filler though 5356 wire is the suggested alternative (Weldability – Gas: Good - Arc: Very Good - Resistance: Good - Braz ability: Good - Solderability: Good)

Heat Treatment	--
Hot Working	--
Cold Working	--
Annealing	--
Aging	--
Hardening	--

## APPLICATIONS

**Typical Applications** Aluminum 6106 alloy is chiefly used in the following:  
**Structural applications - Marine applications - Ladders, pylons and towers - Automotive structures - Railway rolling stock**

## PACKAGING, HANDING & STORAGE:

<b>Package:</b>	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.
<b>Handling:</b>	Prevent the goods hurting the people who are moving, loading, unloading, especially pay attention to the rolling and dropping for the coils.
<b>Storage:</b>	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.

