

TECHNICAL DATA SHEET (TDS)

PRODUCT: 6060 ALUMINUM ALLOY EXTRUDED PROFILE

Aluminum alloy 6060 is a medium strength heat treatable alloy with strength slightly lower than 6005A. It has very good corrosion resistance and very good weldability plus good cold formability especially in T4 temper. It is commonly used alloy for very complex cross sections and has very good anodizing response.

PRODUCT BASIC INFORMATION:

Alloy:	6060		
Form:	Tube, Round Bar, Flat Bar, Square Bar, Angle Bar, Other Profile		
Temper:	T4, T6, T66		
Dimension:	Tube:	Round:	D: 8.0mm to 350mm, T: 1.0~40mm
		Square:	15mm x 15mm ~ 250mm x 250mm
		Rectangle:	10mm x 20mm ~ 200mm x 250mm
	Bar:	Round:	6.0mm to 350mm
		Square:	10mm x 10mm ~ 152.4mm x 152.4mm
		Flat:	18mm x 2mm ~ 152.4mm x 150.0mm
		Angle	W: 10~200mm, T: 1.0~15mm
	Profile	Circumscribing Circle ≤ 350mm	
	Length:	1,000mm to 10,000mm	
Surface Finish:	Mill Finish, Coating, Anodized		
Standard Specification:	ASTM B221, EN 755		

CHEMICAL COMPOSITION:

Element		Percentage (%)
Aluminum	(Al)	Remainder
Silicon	(Si)	0.30~0.6
Iron	(Fe)	0.10~0.3
Copper	(Cu)	0.10 max
Manganese	(Mn)	0.10 max
Magnesium	(Mg)	0.35~0.6
Chromium	(Cr)	0.05 max
Zinc	(Zn)	0.15 max
Titanium	(Ti)	0.10 max
Remainder Each		0.05 max
Remainder Total		0.15 max

MECHANICAL PROPERTIES:

	Temper	Wall Thickness	Ultimate Strength Rm/MPa	Yield Strength Rp0.2/MPa	Elongation Min. %
Tube	T4	≤ 15mm	≥ 120	≥ 60	≥ 16%
	T6	≤ 15mm	≥ 190	≥ 150	≥ 8%
	T66	≤ 15mm	≥ 215	≥ 160	≥ 8%
Profile	T4	≤ 25mm	≥ 120	≥ 60	≥ 16%
	T6	≤ 3mm 3 < t ≤ 25mm	≥ 190 ≥ 170	≥ 150 ≥ 140	≥ 8% ≥ 8%
	T66	≤ 3mm 3 < t ≤ 25mm	≥ 215 ≥ 195	≥ 160 ≥ 150	≥ 8% ≥ 8%
Bar	T4	≤ 150mm*	≥ 120	≥ 60	≥ 16%
	T6	≤ 150mm*	≥ 190	≥ 150	≥ 8%
	T66	≤ 150mm*	≥ 215	≥ 160	≥ 8%

Note:* Diameter for round bar, Width across flats for square, Thickness for rectangle bar

PHYSICAL DATA :

Density (20°C):	2,700	kg/m ³
Melting Point:	655°C	
Thermal Expansion (20°C ~100°C):	23.4 x10 ⁻⁶	/K
Modulus of Elasticity:	69.5	GPa
Thermal conductivity (Temper O):	209	W·m-1·K-1
Electrical Resistivity (Temper O):	0.032 x10 ⁻⁶	Ω .m
Conductivity (Temper O):	54	%IACS
Magnetic performance:	No	
Color:	Silver	
Odour:	No	

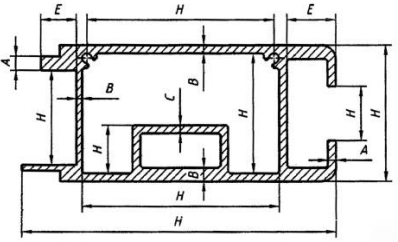
TOLERANCE ON FORMS AND DIMENSIONS :

	Outside Diameter	Tolerance on Diameter		
		Maximum allowable deviation of mean diameter from specified diameter	Maximum deviation of diameter at any point from specified diameter	
			T4, T6	O
Round Tube	≥ 8~18mm	± 0.25mm	± 0.60mm	± 1.50mm
	> 18~30mm	± 0.30mm	± 0.70mm	± 1.80mm
	> 30~50mm	± 0.35mm	± 0.90mm	± 2.20mm
	> 50~80mm	± 0.40mm	± 1.10mm	± 2.60mm
	> 80~120mm	± 0.60mm	± 1.40mm	± 3.60mm
	> 120~200mm	± 0.90mm	± 2.00mm	± 5.00mm
	> 200~350mm	± 1.40mm	± 3.00mm	± 7.60mm

Round Tube	Outside Diameter	Tolerance on Wall Thickness (%)		
		≤ 3.0mm	> 3.0~5.0mm	> 5.0mm
	≤ 150mm	± 7%	± 9%	± 11%
	>150~300mm	± 6%	± 8%	± 10%
>300~350mm	± 5%	± 7%	± 9%	

Square Tube	Width, depth or width across flats	Tolerance on Width, Depth or Width across flats (mm)			
		Circumscribing Circle			
		≤ 100mm	> 100~200mm	> 200~300mm	> 300~350mm
Square Tube	≤ 10 mm	± 0.40	± 0.50	± 0.55	± 0.60
	>10~25mm	± 0.50	± 0.70	± 0.80	± 0.90
	>25~50mm	± 0.80	± 0.90	± 1.00	± 1.20
Rectangle Tube	>50~100mm	± 1.00	± 1.20	± 1.30	± 1.60
	>100~150mm	-	± 1.50	± 1.70	± 1.80
	>150~200mm	-	± 1.90	± 2.20	± 2.40
	>200~300mm	-	-	± 2.50	± 2.80
>300~350mm	-	-	-	± 3.50	

Square Tube	Wall Thickness	Tolerance on Wall Thickness (mm)		
		Circumscribing Circle		
		≤ 100mm	> 100~300mm	> 300~350mm
Square Tube	≥ 0.5~1.5mm	± 0.30	± 0.40	-
	>1.5~3mm	± 0.35	± 0.50	± 0.70
	>3~6mm	± 0.55	± 0.70	± 0.90
Rectangle Tube	>6~10mm	± 0.75	± 1.00	± 1.20
	>10~15mm	± 1.00	± 1.30	± 1.50
	>15~20mm	± 1.50	± 1.80	± 2.00
	>20~30mm	± 1.80	± 2.20	± 2.50
>30~40mm	-	± 2.50	± 3.00	

Profile			Note:				
			For the profile with open ends, additional tolerance shall be added on dimension H				
	Dimension H	Tolerance on Dimension H				Additional Tolerance with open ends	
		≤ 100mm	> 100~200	> 200~300	> 300~350	Dimension E	Tolerance
	≤ 10mm	± 0.25	± 0.30	± 0.35	± 0.40	≤ 20mm	-
>10~25mm	± 0.30	± 0.40	± 0.50	± 0.60	>20~30mm	± 0.15	
>25~50mm	± 0.50	± 0.60	± 0.80	± 0.90	>30~40mm	± 0.25	

Profile	>50~100mm	± 0.70	± 0.90	± 1.10	± 1.30	>40~60mm	± 0.40
	>100~150mm	-	± 1.10	± 1.30	± 1.50	>60~80mm	± 0.50
	>150~200mm	-	± 1.30	± 1.50	± 1.80	>80~100mm	± 0.60
	>200~300mm	-	-	± 1.70	± 2.10	>100~125mm	± 0.80
	>300~350mm	-	-	-	± 2.80	>125~150mm	± 1.00
Profile	Wall Thickness A, B, C	Tolerance on Wall Thickness A, B, C (mm)					
		Circumscribing Circle					
		≤ 100mm	>100~300	>300~350	≤ 100mm	>100~300	>300~350
		Wall Thickness A			Wall Thickness B		
	≤ 1.5mm	± 0.15	± 0.20	± 0.25	± 0.20	± 0.30	-
	>1.5~3.0mm	± 0.15	± 0.25	± 0.35	± 0.25	± 0.40	± 0.60
	>3.0~6.0mm	± 0.20	± 0.30	± 0.40	± 0.40	± 0.60	± 0.80
	>6.0~10mm	± 0.25	± 0.35	± 0.45	± 0.60	± 0.80	± 1.00
	>10~15mm	± 0.30	± 0.40	± 0.50	± 0.80	± 1.00	± 1.20
	>15~20mm	± 0.35	± 0.45	± 0.55	± 1.20	± 1.50	± 1.70
	>20~30mm	± 0.40	± 0.50	± 0.60	± 1.50	± 1.80	± 2.00
	>30~40mm	± 0.45	± 0.60	± 0.70	-	± 2.00	± 2.20
		Wall Thickness C					
	≤ 1.5mm	± 0.25	± 0.35	-			
	>1.5~3.0mm	± 0.30	± 0.50	± 0.75			
	>3.0~6.0mm	± 0.50	± 0.75	± 1.00			
	>6.0~10mm	± 0.75	± 1.00	± 1.20			
	>10~15mm	± 1.00	± 1.20	± 1.50			
	>15~20mm	± 1.50	± 1.90	± 2.00			
	>20~30mm	± 1.90	± 2.20	± 2.50			
>30~40mm	-	± 2.50	± 2.70				

	Diameter or Width across flats	Tolerance	
		Round Bar	Square Bar
Round Bar & Square Bar	≥ 8mm~10mm	± 0.22mm	-
	≥ 10mm~18mm	± 0.22mm	± 0.22mm
	>18~25mm	± 0.25mm	± 0.25mm
	>25~40mm	± 0.30mm	± 0.30mm
	>40~50mm	± 0.35mm	± 0.35mm
	>50~65mm	± 0.40mm	± 0.40mm
	>65~80mm	± 0.45mm	± 0.45mm
	>80~100mm	± 0.55mm	± 0.55mm
	>100~120mm	± 0.65mm	± 0.65mm
	>120~150mm	± 0.80mm	± 0.80mm
	>150~180mm	± 1.00mm	± 1.00mm
	>180~220mm	± 1.15mm	± 1.15mm
	>220~270mm	± 1.35mm	-
	>270~320mm	± 1.60mm	-

	Width	Tolerance on width and Thickness								
		Width (mm)	Thickness (mm)							
			≤ 6	≤ 10	≤ 18	≤ 30	≤ 50	≤ 80	≤ 120	≤ 150
Flat Bar	≥10~18mm	± 0.25	±0.20	±0.25	±0.25	-	-	-	-	-
	>18~30mm	± 0.30	±0.20	±0.25	±0.30	±0.30	-	-	-	-
	>30~50mm	± 0.40	±0.25	±0.25	±0.30	±0.35	±0.40	-	-	-
	>50~80mm	± 0.60	±0.25	±0.30	±0.35	±0.40	±0.50	±0.60	-	-
	>80~120mm	± 0.80	±0.30	±0.35	±0.40	±0.45	±0.60	±0.70	±0.80	-
	>120~150mm	± 1.00	±0.40	±0.45	±0.50	±0.55	±0.60	±0.70	±0.90	±1.00

	Circumscribing circle Diameter	Tolerance on fixed Length		
		≤ 2000mm	> 2000~5000mm	> 5000~10000mm
Tube Profile Bar	≤ 100mm	+ 5mm	+ 7mm	+ 10mm
	>100~200mm	+ 7mm	+ 9mm	+ 12mm
	>200~350mm	+ 8mm	+ 11mm	+ 14mm

APPLICATIONS

Typical Applications

Alloy 6060 is typically used for extrusions with complex cross sections and/or requiring anodizing:

- ✧ Architectural sections for windows, doors, curtain walls
- ✧ Interior fittings, frame systems, lighting, ladders, railings, fences
- ✧ Heat sink sections, electronic modules, electro motor housings
- ✧ Flexible assembly systems, special machinery elements
- ✧ Truck and trailer flooring, pneumatic installation, railway, inside applications
- ✧ Irrigation, heating and cooling pipes
- ✧ Furniture, office equipment.

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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