TECHNICAL DATA SHEET (TDS)

PRODUCT: 7075 ALUMINUM ALLOY COIL / SHEET

7075 is an aluminum alloy with zinc as the primary alloying element. Its alloy's composition roughly includes 5.6–6.1% zinc, 2.1–2.5% magnesium, 1.2–1.6% copper, and less than a half percent of silicon, iron, manganese, titanium, chromium, and other metals. It has excellent mechanical properties, and exhibits good ductility, high strength, toughness and good resistance to fatigue. It is more susceptible to embrittlement than many other aluminum alloys because of micro segregation, but has significantly better corrosion resistance than the 2000 alloys. It is one of the most commonly used aluminum alloy for highly stressed structural applications, and has been extensively utilized in aircraft structural parts.

PRODUCT BASIC INFORMATION:

Alloy:	**7075**	
Form:	Sheet, Coil	
Temper:	O, T6	
Dimension:	Thickness:	0.8mm 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, EN 485, ASTM B209	
Application:	General Use	

CHEMICAL COMPOSITION:

Element		**Percentage (%)**
Aluminum	**(Al)**	Remainder
Silicon	**(Si)**	0.40 max
Iron	**(Fe)**	0.50 max
Copper	**(Cu)**	1.2~2.0
Manganese	**(Mn)**	0.30 max
Magnesium	**(Mg)**	2.1~2.9
Chromium	**(Cr)**	0.18~0.28
Zinc	**(Zn)**	5.1~6.1
Titanium	**(Ti)**	0.20 max
Remainder Each		0.05 max
Remainder Total		0.15 max

MECHANICAL PROPERTIES:

	Thickness	O	T6
Ultimate Strength Rm/MPa	≥ 0.8~1.5mm	≤ 275	≥ 540
	≥ 1.5~3.0mm	≤ 275	≥ 540
	≥ 3.0~6.0mm	≤ 275	≥ 545
Yield Strength Rp0.2/MPa	≥ 0.8~1.5mm	≤ 145	≥ 460
	≥ 1.5~3.0mm	≤ 145	≥ 470
	≥ 3.0~6.0mm	≤ 145	≥ 475
Elongation Min. %	≥ 0.8~1.5mm	≥ 10%	≥ 6%
(A_{50mm})	≥ 1.5~3.0mm	≥ 10%	≥ 7%
	≥ 3.0~6.0mm	≥ 10%	≥ 8%
Bend Radius (90º)	≥ 0.8~1.5mm	1.0t	5.5t
	≥ 1.5~3.0mm	1.0t	6.5t
	≥ 3.0~6.0mm	2.5t	8.0t

PHYSICAL DATA :

Density (20°C):	2,810	kg/m³
Melting Point:	532°C	
Thermal Expansion (20°C ~100°C):	23.4 x10^{-6}	/K
Modulus of Elasticity:	72.4	GPa
Thermal conductivity (Temper T6):	130	W·m-1·K-1
Electrical Resistivity (Temper T6):	0.0522 x10^{-6}	Ω .m
Conductivity (Temper T6):	33	%IACS
Magnetic performance:	No	
Color:	Silver	
Odour:	No	

TOLERANCE ON FORMS AND DIMENSIONS :

Thickness Tolerance:	**Thickness**	**Width**			
		≤1000mm	>1000~1250mm	>1250~1600mm	>1600~2000mm
	≥ 0.8~1.0mm	± 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	The 7075 alloy is capable of high strength as developed by heat treating. It also has excellent properties at low temperatures.
Machinability	It is best to machine this alloy in the annealed condition. Machining capability is good and oil lubricants should be used.
Forming	This alloy is comparatively strong for an aluminum alloy. As such it produces greater spring back during forming operations. Forming is best done in the annealed condition and if difficulty is encountered then warming the material to 200 - 250 F will assist formability.

Weldability	Resistance welding is the only preferred method of joining AL 7075 alloy. Gas welding should be avoided and use of arc welding may result in degradation of corrosion resistance.
Heat Treatment	This alloy may be solution annealed at 482°C for 2 hours at temperature, followed by a water quench. The alloy may then be given a precipitation hardening (aging) heat treatment -- see "Aging".
Hot Working	Warming the material to 121°C will greatly assist formability.
Cold Working	Cold working is readily accomplished with the alloy in the soft, annealed, condition. Conventional forming methods may be used, but spring back is greater for this alloy than for other of the aluminum alloys.
Annealing	The temperature for annealing AL 7075 alloy is 413°C, holding at temperature for 3 hours. Controlled cooling at 10°C per hour should then be used down to 260°C from which it can then be air cooled.
Aging	Precipitation strengthening (aging) is done at 121°C for 24 hours and air cooled for T 6. The T73 temper requires heating to 107°C for 8 hours followed by 24 hours at 163°C and air cooling.
Hardening	Hardens by precipitation heat treatment -- see "Aging".

APPLICATIONS

Typical Applications	Typical uses. Aircraft structural parts and other highly stressed structural applications where very high strength and good resistance to corrosion are required. Precautions in use. Caution should be exercised in T6 temper applications where sustained tensile stresses are encountered, either residual or applied, particularly in the transverse grain direction. In such instances, the T73 temper should be considered, at some sacrifice in tensile strength.

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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