Heat Treatable Al-Zn-Mg-Cu Wrought Alloy 7075

Chemical Composition Limits (in %)

Cu	Mg	Si	Fe	Mn	Zn	Ti	Cr	Other elements Each	Other elements Total
1,2 2,0	2,1 2,9	0,4	0,5	0,3	5,1 6,1	0,2	0,18 0,28	0,05	0,15

Outstanding Characteristics:

Very high strength.

Standard Commodities:

Extrusions.

Typical Uses:

Aircraft structures. Armaments – forgings.

Typical Physical Properties

Density	2,80	g/cm^3
Modulus of Elasticity	72	GPa
Melting Range	475-630	^oC
Coefficient of linear expansion between 20-100^oC (293-373K)	$23,5 \times 10^{-6}$	/K
Thermal Conductivity at 25^oC (298 K)	130	W/mK
Resistivity at 20^oC (293 K)	$0,052 \times 10^{-6}$	Ωm

Other Characteristics

Corrosion Resistance	:	Poor
Weldability	:	Not suitable
Formability	:	Fair in O temper
Machinability	:	Excellent
Anodising	:	Good
Brazeability	:	Not brazeable

Mechanical Properties

Commodity And Temper	Gauge mm	0,2% Proof Stress MPa	Ultimate Tensile Strength MPa	Elongation A5 %	Brinell Hardness HB	Ultimate Shear Strength MPa
Extrusions						
T6	up to 75	480 (540)	540 (590)	5 (7)	150	
T8	up to 75	480 (540)	540 (590)	5 (7)	150	
T76*	up to 75	440 (480)	510 (540)	6 (7)		
Sheet and Plate						
O	3,0 – 100,0	80 (-) 145	180 (-) 275	16**		
T6	3,0 – 100,0	460 (-) 555	525 (-) 635	7**		

* Solution heat-treated and artificially aged to achieve optimum stress corrosion resistance but with 10% lower tensile properties than T8.

** 50 mm gauge length

Heat Treatment

Solution Heat Treatment

Ageing

Temper	Temperature ^oC	Time h	Quenching	Temperature ^oC	Time h
T6	465^{+3}_{-2}		In water	120 ± 3	24