

ALLOY DATA SHEET EN-AW 6061 [AlMg1SiCu] (Type: High strength structural alloy)

The alloy EN AW-6061 is a high strength extrusion alloy, for highly loaded structural applications. Typical applications are scaffolding elements, rail coach parts, containers, machine building and aerospace parts. This alloy is equivalent to EN AW-6082, however due to its higher Cu-content, the corrosion resistance is somewhat lower.

Chemical composition according to EN573-3 (weight%, remainder Al)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	remarks	others	
									each	total
0.40-0.8	max. 0.7	0.15-0.40	max. 0.15	0.8-1.2	0.04-0.35	max. 0.25	max. 0.15		max. 0.05	max. 0.15

Mechanical properties according to EN755-2

Temper*	Wallthickness e*** [mm]	Yield stress Rp _{0.2} [MPa]	Tensile strength Rm [MPa]	Elongation		Hardness** HB
				A [%]	A ₅₀ [%]	
T4	≤ 25	110	180	15	13	65
T6	≤ 5	240	260	9	7	85
	5 < e ≤ 25	240	260	10	8	85

*Temper designation according to EN515: T4-Naturally aged to a stable condition, T6-Solution heat treated, quenched and artificially aged, (T6 properties can be achieved by press quenching)

** Hardness values are for indication only

***For different wall thicknesses within one profile, the lowest specified properties shall be considered as valid for the whole profile cross section

Physical properties (approximate values, 20°C)

Density [kg/m ³]	Melting range [°C]	Electrical Conductivity [MS/m]	Thermal Conductivity [W/m.K]	Co-efficient of thermal Expansion 10 ⁻⁶ /K	Modulus of Elasticity [GPa]
2700	585-640	22-30	170-200	23	~70

Weldability¹

Gas: 3 TIG: 2 MIG: 2 Resistance welding: 3

Typical filler materials (EN ISO18273): SG-AlMg5Cr(A) or SG-AlMg4.5Mn0.7(A) or AlSi5. Due to the heat input during welding the mechanical properties will be reduced by approximately 50% (ref. EN1999-1).

Machining characteristics¹

T4 temper: 4

T6 temper: 2

Coating properties¹

Hard protecting
anodising: 1

Bright/colour anodising: 3
Other: 2

Corrosion resistance¹

General: 1 Marine: 2-3

¹Relative qualification ranging from 1-very good to 6 unsuitable

