

ALLOY DATA SHEET

EN AW-6061 [AlMg1SiCu]

Type:
High strength
structural alloy

The alloy EN AW-6061 is a high strength 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***	Yield stress Rp _{0.2} [MPa]	Tensile strength Rm [MPa]	Elongation		Hardness** HB
				A [%]	A _{50mm} [%]	
T4	e ≤ 25	110	180	15	13	65
T6	e ≤ 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	Melting range	Electrical conductivity	Thermal conductivity	Co-efficient of thermal expansion	Modulus of elasticity
[kg/m ³]	[°C]	[MS/m]	[W/m.K]	10 ⁻⁶ /K	[GPa]
2700	585-640	22-30	170-200	23	~70

Weldability¹

Gas: 3 TIG: 2 MIG: 1 Resistance welding: 3
 Typical filler materials (EN ISO18273): SG-AlMg5Cr(A), 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

Corrosion resistance¹

General: 2 Marine: 2-3

Coating properties¹

Hard/protective anodising: 1 Bright/colour anodising: 3 Other: 2

Product Availability:

Aluminum 6061 T6 Elbow

Aluminum 6061 T6 Pipes