

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	
0.40 – 0.80	max. 0.70	0.15 – 0.40	max. 0.15	0.80 – 1.20	0.04 – 0.35	max. 0.25	max. 0.15		each max. 0.05	total max. 0.15

Mechanical properties according to EN755-2

Temper*	Wall thickness 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	95
	5 < e ≤ 25	240	260	10	8	95

* 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 (20-100 °C)	Modulus of elasticity [GPa]
2700	585 – 640	22 – 30	170 – 200	23	~ 70

Weldability*

Gas: 3 TIG: 2 MIG: 1 Resistance welding: 3

Typical filler materials (EN ISO 18273): 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. EN 1999-1).

Machining characteristics*

T4 temper: 4 T5 and T6 temper: 2

Coating properties*

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

Corrosion resistance*

General: 2 Marine: 2-3