

ALLOY DATA SHEET EN AW 6063 [AlMg0.7Si]

ALLOY TYPE: GENERAL EXTRUSION

EN AW 6063 is a medium strength alloy, suitable for applications where no special strength properties are required. Simple to complex shapes can be produced with very good surface quality characteristics, and suitable for many coating operations such as anodizing and powder coating. Typical areas of application for this alloy is architectural doors and windows, facades, furniture parts, lighting columns and flagpoles, heat sink sections, office equipment, trailer flooring, irrigation, heating and cooling pipes, ladders, railings.

Chemical composition according to EN 573-3

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Other		Al
								Each	Total	
0,20-0,60	0,35	0,10	0,10	0,45-0,90	0,10	0,10	0,10	0,05	0,15	Rest

Physical Properties (approx. 20°C)

Density [g/cm ³]	Melting range [°C]	Electrical conductivity [MS/m]	Thermal conductivity [W/(m K)]	Thermal expansion [10 ⁻⁶ /K]	Modulus of elasticity [MPa]	Shear modulus [MPa]
2,7	585-650	34-38	200-220	23,4	69500	26100

Mechanical Properties (extruded profiles) EN 755-2

TEMPER	Wall Thickness	Proof stress	Tensile strength	Elongation		Brinell Hardness
				min	min	
	e* mm	R _{p0,2} min MPa	R _m min MPa	A _{50mm} %	A %	HB**
T4	e ≤ 25	65	130	12	14	45
T5	e ≤ 3	130	175	6	8	55
	3 < e ≤ 25	110	160	5	7	50
T6	e ≤ 10	170	215	6	8	65
	10 < e ≤ 25	160	195	6	8	60
T66	e ≤ 10	200	245	6	8	75
	10 < e ≤ 25	180	225	6	8	70

* For different wall thicknesses of a given profile, the lowest specified values of properties shall be considered as valid for the whole profile cross section

** The values for the HB hardness are indicative only

Temper Designation according to EN 515

T4	Solution heat treated & naturally aged
T5	Cooled from an elevated temperature forming operation & artificially aged (precipitation hardened)
T6	Solution heat treated & artificially aged (precipitation hardened) Press quenching required
T66	Cooled from an elevated temperature forming operation & artificially aged (precipitation hardened) to a higher level of mechanical properties through special control of manufacturing process. Press quenching required

Weldability***- Gas: **3** TIG: **2** MIG: **1** (Filler materials (EN ISO 18273): AlMg5Cr (A) or AlSi5, and AlMg3 if product has to be anodized. Due to the welding heat input consider 50% off properties (ref: EN 1999-1).

Machining***- T4 temper: **3** T5 & T6: **2**

Corrosion resistance***- Atmosphere: **2** Seawater: **2-3**

Coating Properties***- Protection anodizing: **1** Decorative anodizing: **3** Coating: **2**

***Qualification ranking: 1-very good to 6-unsuitable