

Extruded products Technical datasheet

Alloy EN AW-6060 [Al MgSi]

Alloy 6060 offers good strength, slightly lower than 6063, very good corrosion resistance and is suitable for decorative anodizing. Used primarily for structures requiring good strength, very good surface finish and good anodising response, such as profiles for windows, doors, entrance lots, ceilings and furniture. This is also a commonly used alloy for thermal applications such as heat sinks.

Typical Applications

- Architectural and building products
- Railings and furniture
- Door and window frames
- Pipe and tube for irrigation systems
- Electrical components and conduit
- Truck and trailer flooring
- Heat sinks
- Ladders

Chemical Composition ¹

Si		Fe		Cu		Mn		Mg		Cr		Zn		Ti		Pb		Bi	Sn	Others	
Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Max	Max	Max	Tot
0,30	0,60	0,10	0,30		0,10		0,10	0,35	0,60		0,05		0,15		0,10					0,05	0,15

¹ Chemical composition according to EN-573-3:1994

Mechanical Properties ^{2 3}

Temper	Wall thickness t [mm]	R _{p0,2} [MPa]	R _m [MPa]	A [%]	A _{50 mm} [%]	HBW ^c TYPICAL VALUE	Vickers ^c TYPICAL VALUE	Webster ^c TYPICAL VALUE
T4 ^a	t≤25	60	120	16	14	50	56	9
T5	t≤5	120	160	8	6	60	68	12
	5<t≤25	100	140	8	6	60	68	12
T6 ^a	t≤3	150	190	8	6	70	80	14
	3<t≤25	140	170	8	6	70	80	14
T64 ^{a b}	t≤15	120	180	12	10	60	68	12
T66 ^a	t≤3	160	215	8	6	75	86	14
	3<t≤25	150	195	8	6	75	86	14

² Properties according to EN 755-2:2008 for extruded profile, minimum values unless else specified

³ If a profile cross section is comprised of different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile section

^a Properties may be obtained by press quenching

^b Bending quality

^c Brinell hardness values for information only. Vickers and Webster converted from Brinell value and should be considered approximate

Temper Designations ⁴

T4	Solution heat treated and naturally aged
T5	Cooled from an elevated temperature shaping process and then artificially aged
T6	Solution heat treated and then artificially aged
T64	Solution heat treated and then artificially aged in underageing conditions (between T6 and T61) to improve formability
T66	Solution heat treated and then artificially aged – mechanical property level higher than T6 achieved through special control of the process

⁴ Temper designations according to EN 515:1993

Extruded products Technical datasheet

Alloy EN AW-6060 [Al MgSi]

Physical Properties ⁵

Alloy	Temper	Modulus of Elasticity [GPa]	Modulus of Rigidity [GPa]	Melting Range [°C]	Density [g/cm ³]	Thermal Conductivity [W/m·K]	Specific Heat Capacity [J/kg·K]	Electrical Resistivity [nΩm]	Coefficient of linear expansion [10 ⁻⁶ K ⁻¹]
6060		69	26	610 - 655	2,70		901		23,4
	T6					200		32	

⁵ Reference: MNC Handbok nr 12, version 2, SIS, 1989. Typical properties at room temperature 20°C

Comparative Characteristics of Related Alloys ⁶

Property	6060	6063	6005	6005A	6082
Tensile strength	1	2	3	3	4
Impact strength	2	2	1	3	4
Surface finish	5	4	3	3	2
Suitability for decorative anodizing	5	5	4	3	2
Corrosion resistance	5	5	4	4	4
Machinability	2	3	4	4	5
Coldforming	5	5	4	4	3
Weldability	5	5	5	5	4

⁶ Relative grading, 5 = top grade

Fatigue Properties

Example of fatigue properties for 6060 in temper T66. Provided for informational purposes only, not to be considered as guaranteed properties.

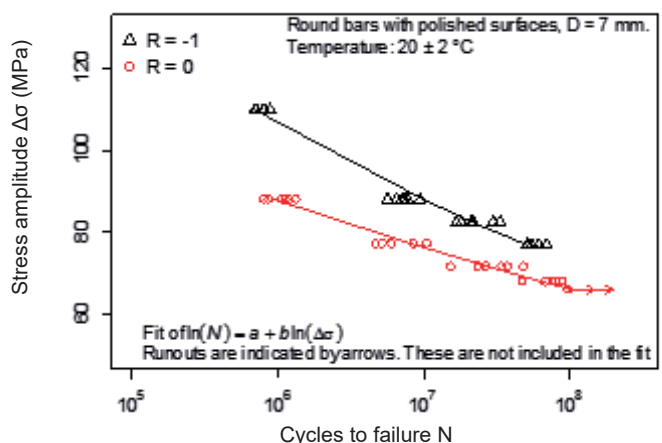
Results are valid for the investigated specimens taken from a specific sample.

Tests performed at 20 ± 2 °C on 7 mm diameter cylindrical specimens parallel to the extrusion direction by Sapa Technology, Finspång, Sweden.

Axial testing, constant amplitude, sine wave loading at around 100 Hz test frequency.

Load ratio (min. stress / max. stress) R = 0, R = -1.

Runouts after 10⁸ cycles are indicated by the arrows.

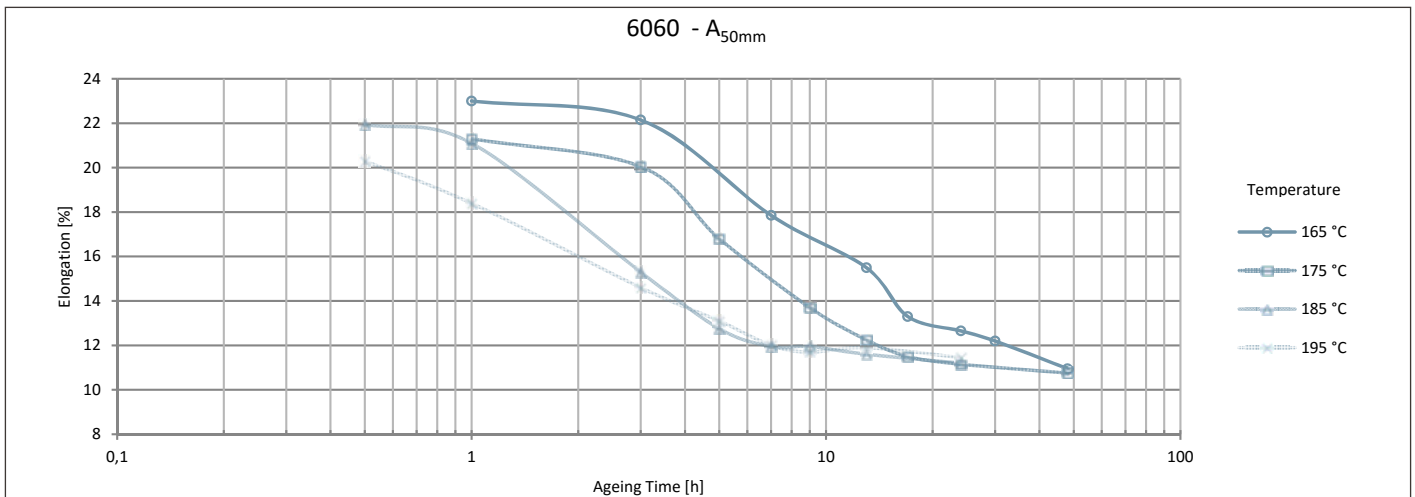
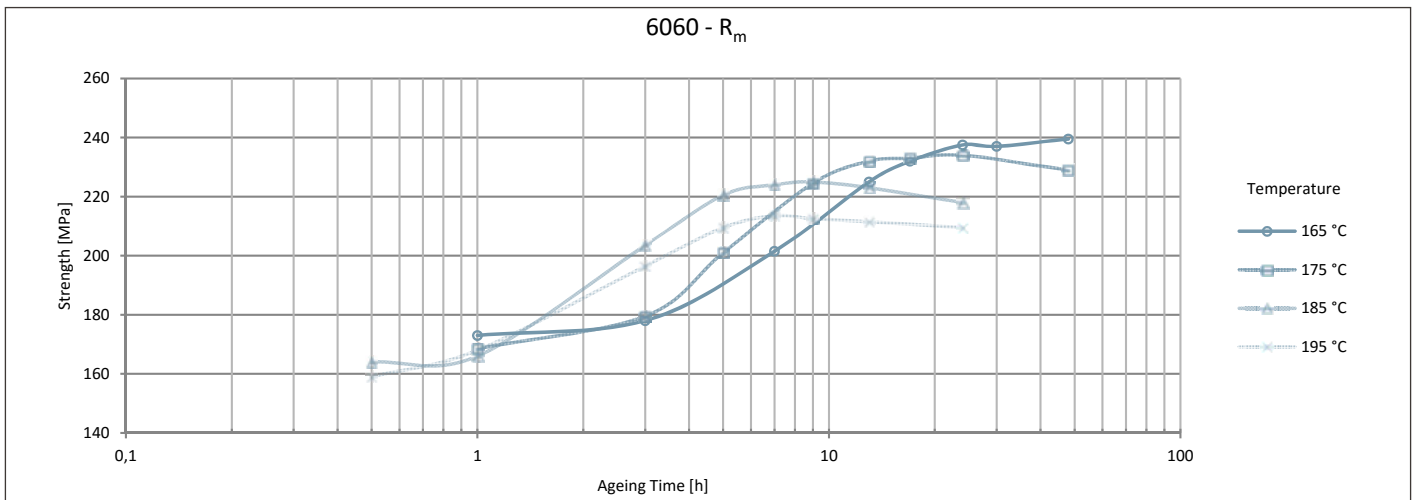
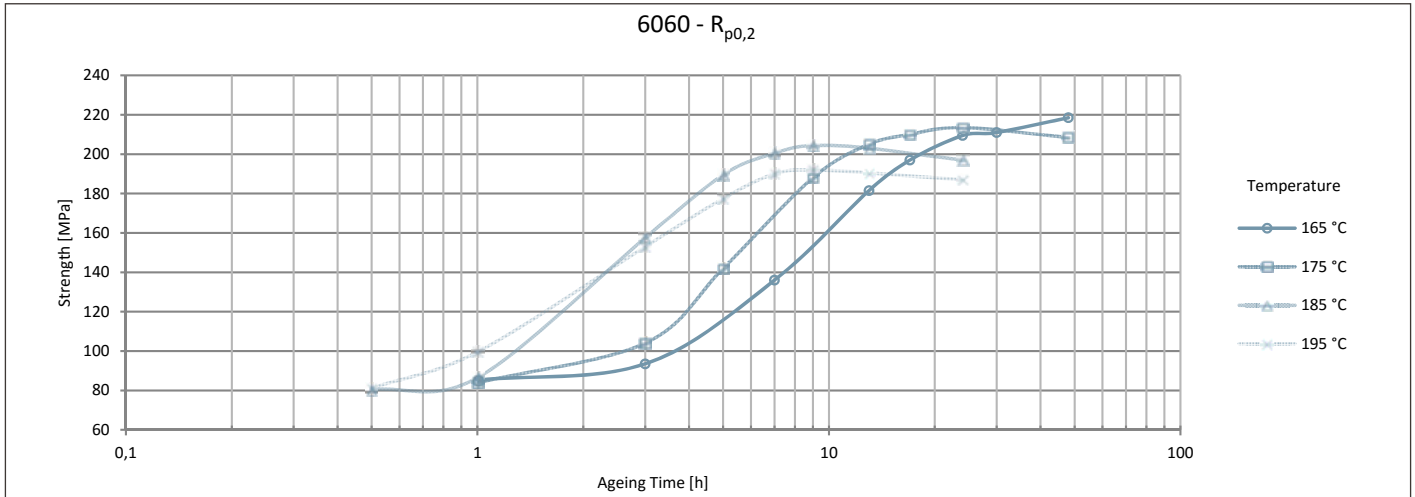


Extruded products Technical datasheet

Alloy EN AW-6060 [Al MgSi]

Heat Treatment Response ⁷

Example of heat treatment response for alloy 6060.



⁷ Solid profile, 200 x 3mm, air quenched after extrusion, 24h natural ageing prior to artificial ageing, samples are taken parallel to extrusion direction