Technical Datasheet

EN-AW 6082 / AlSi1MgMn

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BRIEF DESCRIPTION

Alloy 6082 T6 is known for its high strength and excellent resistance to corrosion. Due to its high strength-to-weight ratio, 6082 T6 is widely used in the construction of large, load-bearing structures like bridges, cranes, towers, and other heavy-duty structures where strength and weight reduction are critical.

It has good hardness (approx. >91HB), which increases after the T6 heat treatment, making it suitable for structural applications.

6082 T6 shows good resistance to fatigue and stress cycles. The combination of these properties enables it to be used for machine parts, bolted and welded constructions.

PROCESSING METHODS

Weldability

- TIG/MIG — excellent
  filler alloy — AA 4043, AA 5356
- by resistance — excellent

Anodizing

- technical — excellent
- decorative — good

Machinability — good

Corrosion behaviour

- excellent in inland atmosphere
- good in marine atmosphere

AVAILABILITY

6082 alloy extruded profiles and tubes are available in temper O/H111, T4 & T6 in the dimensions:

Diameter

Almost any shape ≤ 450 mm

Share your design or requirements with us and we will investigate if any limitations are applicable.

CHEMICAL COMPOSITION (weight %)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti +Zr
0.7 1.3	max. 0.5	max. 0.1	0.4 1.0	0.6 1.2	max. 0.25	max. 0.2	-

PHYSICAL PROPERTIES (nominal values)

Density	2.70 g/cm^3
Elastic modulus	69000 MPa
Lin. thermal expansion coefficient (20°-100°C)	23.4 10^{-6} K^{-1}
Thermal conductivity (Temper T6)	150 - 170 W/mK
Electrical conductivity (Temper T6, 20°C)	24 - 28 MS/m

MECHANICAL STRENGTH

Min. tensile properties (EN Standard 755-2)

Dimension	Temper	Rm [MPa]	Rp0.2 [MPa]	A50 [%]
Tubes & Profiles (wall thickness)				
≤ 25	O/H111	160(max)	110(max)	12
≤ 5	T6	290	250	6
5 >≤25	T6	310	260	8
Bar (diameter)				
≤ 250	O/H111	160(max)	110(max)	12
≤ 20	T6	295	250	6
20 ≤ 150	T6	310	260	-
150 >≤ 200	T6	280	240	-

Typical strength for various thicknesses

Dimension	Temper	Rm [MPa]	Rp0.2 [MPa]	A50 [%]
Tubes & Profiles (wall thickness)				
≤ 25	O/H111	155	105	14
≤ 5	T6	320	280	8
5 >≤25	T6	340	290	10
Bar (diameter)				
≤ 250	O/H111	180	130	14
≤ 20	T6	325	280	8
20 ≤ 150	T6	340	290	-
150 >≤ 200	T6	310	270	-