

EN AW 7005 / AlZn4,5Mg1,5Mn

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BRIEF DESCRIPTION

En AW 7005, high strength aluminium extruded profiles, are developed to combine high strength with good weldability. EN AW 7005 was developed especially for welding since the final strength at the joints of the welded spot is only slightly lower than that of the base material. This alloy is used in air container equipment, railway carriages, truck fenders and other applications where the strength/weight ratio is highly valued.

PROCESSING METHODS

Weldability

- TIG/MIG excellent
 Filler alloy AA 5183
 AA 5356
- by resistance good

Anodizing

- technical good
- decorative moderate

Machinability excellent

Corrosion Behaviour

- good in inland atmosphere
- moderate in marine atmosphere

CORROSION

The alloy has an acceptable resistance to inter-crystalline and exfoliation corrosion in the delivery T6 temper. Note that corrosion resistance of

En AW 7005 can be severely reduced by unsuitable finishing operations. In order to avoid problems, users of this alloy should contact their supplier

AVAILABILITY

7005 alloy profiles are heat treated according to EN and available in temper T4/T6, F and temper T0 (heat annealed) in the following dimensions:

Thickness	Max. length
3,0 - 50,0 mm	5800 mm

CHEMICAL COMPOSITION (weight %)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Zr
max. 0.08	max.	max.	0.20	1.0	0.06	4.0	0.01	
0.35	0.40	0.10	0.70	1.8	0.20	5.0	0.06	
0.20								

Remainder is aluminum

PHYSICAL PROPERTIES (nominal values)

Density	2.77g/cm ³
Elastic Modulus	72000 MPa
Lin. thermal expansion coefficient (20°C-100°C)	23.8 10 ⁻⁶ K ⁻¹
Electrical conductivity (Temper T6)	22 - 24 MS/m

MECHANICAL STRENGTH

Typical tensile properties (T6)

Thickness	Temper	Rm [MPa]	Rp0.2 [MPa]	A50 [%]
3,0 – 50 mm	T6	350	290	>8

HEAT TREATMENT T0 -> T6

The T0 temper has optimal formability properties and may be used for difficult bended products. After the product is formed, the T6 temper can be reached by a multiple heat treatment.

Info on the specific heat treatment is available upon request. Please note that T0 material is subject to natural aging.

WELDING

7005 alloy is excellent for TIG/MIG welding methods. The strength level of welds increases by natural ageing and reaches after 3 months almost the T6 temper (quenched – artificially aged) level.