

EN-AW 7108 /AlZn5Mg1Zr

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BRIEF DESCRIPTION

EN-AW 7108, high strength aluminium as extruded profiles are developed to combine high strength with optimal weldability. EN-AW 7108 was developed especially for use in welded structures, as 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 transport container equipment, railway carriages, trucks 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. Note that corrosion resistance of 7108 can be severely reduced by unsuitable finishing operations. In order to avoid problems, users of this alloy should contact their supplier

AVAILABILITY

7108 alloy profiles are available in temper T5, T6 and temper T0 (heat annealed) in the following dimensions :

Thickness	Max. length
1,5 - 6,0 mm	8500 mm

CHEMICAL COMPOSITION (weight %)

Si	Fe	Cu	Mn	Mg	Ti	Zn	Zr	Al
max. 0.10	max. 0.10	max. 0.05	max. 0.05	0.7 1.4	max. 0.05	4.5 5.5	0.12 0.25	rest

PHYSICAL PROPERTIES (nominal values)

Density	2.77g/cm ³
Elastic Modulus	71000 MPa
Lin. thermal expansion coefficient (20°C-100°C)	23.6 · 10 ⁻⁶ K ⁻¹
Thermal conductivity	135 - 160 W/mK
Electrical conductivity	20 - 24 MS/m

MECHANICAL STRENGTH

Typical tensile properties

Thickness (over ... to)	Temper	Rm [MPa]	Rp0.2 [MPa]	A50 [%]
1.5 –6.0 mm	T5	340	290	12
	T6	360	320	10
	T0	200	140	15

HEAT TREATMENT T0 -> T6

The T0 temper has optimal formability properties and may be used for difficult bended and deep drawn products. After the product is formed, the T5 and T6 temper can be reached by a multiple heat treatment.

Info on the specific heat treatment is available upon request.

WELDING

7108 alloy is excellent for TIG/MIG welding methods. The strength level of welds increases by natural ageing and reaches after 3 months almost the T5 temper level.