Technical Datasheet

EN-AW 7020/AlZn4.5Mg1

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BRIEF DESCRIPTION

EN-AW 7020 high strength aluminium sheet are developed to combine high strength with optimal formability. Typical uses include bike frames, safety shoe components, impact pads in fireman suits, armoured vehicles and military bridges.

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
7020 can be severely reduced by unsuitable finishing operations. In order to avoid problems, users of this alloy should refer to the technical data sheet on finishing of 7020 alloy.

AVAILABILITY

7020 alloy sheets, coils and blanks are available in temper T6 and temper T0 in the following dimensions :

Thickness	Max. width
1 - 3.5 mm	1500 mm
3.6 – 100 mm	2000 mm

CHEMICAL COMPOSITION (weight %)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al
max. 0.35	max. 0.40	max. 0.20	0.05 – 0.50	1.0 – 1.4	0.10 – 0.35	4.0 – 5.0	0.02 – 0.10	rest

PHYSICAL PROPERTIES (nominal values)

Density	2.8 g/cm^3
Elastic Modulus	71000 MPa
Lin. thermal expansion coefficient (20°C-100°C)	23.6 10^{-6} K^{-1}
Thermal conductivity (Temper T6)	135 - 160 W/mK
Electrical conductivity (Temper T6)	20 - 24 MS/m

MECHANICAL STRENGTH

Min. tensile properties (EN 485-2)

Thickness (over ... to)	Temper	Rm [MPa]	Rp0.2 [MPa]	A50 [%]
1.0 – 3.5 mm	T6	350	280	7
1.0 – 3.5 mm	T0	<220	<140	13

Typical strength for various thicknesses

Thickness (over ... to)	Temper	Rm [MPa]	Rp0.2 [MPa]	A50 [%]	HB
1.0 – 3.5 mm	T6	395	350	13	110
1.0 – 3.5 mm	T0	200	130	16	55

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 T6 temper can be reached by a 4-step heat treatment. Info on the specific heat treatment is available upon request.

WELDING

7020 alloy is excellent for TIG/MIG welding methods. The strength level of welds increases by natural ageing and reaches after 3 months ¾ of the T6 temper (quenched - naturally aged) level.

Heating the alloy can result in loss of strength and / or corrosion resistance. Whenever a new application of this alloy is contemplated, and if this application involves special properties such as corrosion resistance, toughness, fatigue strength, it is strongly recommended that the user should consult the producer in order to make a precise and appropriate selection of the material. The information in this publication does not imply a guarantee of properties or of capability for fabrication, assembly or application in a particular case. Euralco reserves the right to modify this data sheet without prior warning. This edition march 2005 replaces all previous editions.