Technical Datasheet

EN AW- 2024 / AlCu4Mg1

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BRIEF DESCRIPTION

EN AW 2024 sheets and plates are mainly used for machine construction and apparatus subject to static or dynamic loading.

Typical applications include various supports and structural parts of machines.

PROCESSING METHODS

Weldability

- TIG/MIG difficult
- By resistance difficult

Anodising

- technical good
- decorative moderate

Machinability good

Corrosion behaviour

- moderate in inland atmosphere
- critical in marine atmosphere

AVAILABILITY

EN AW 2024 plates are available in temper T351 (quenched-stretched-naturally aged) in the following dimensions :

Thickness	Max. width
1.0 – 7.9mm	1500 mm
8.0 – 60 mm	2020 mm
60 – 70 mm	1700 mm
70 – 80 mm	1420 mm
80 – 90 mm	1260 mm
90 – 102 mm	1020 mm

CHEMICAL COMPOSITION (weight %)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti +Zr
max. 0.40	max. 0.45	4.0 4.6	0.5 0.8	1.3 1.7	max. 0.05	max. 0.18	max. 0.10

PHYSICAL PROPERTIES (nominal values)

Density	2.78 g/cm^3
Elastic modulus	73000 MPa
Lin. thermal expansion coefficient (20°-100°C)	23.2 10^{-6} K^{-1}
Thermal conductivity (Temper T351)	110 - 130 W/mK
Electrical conductivity (Temper T351, 20°C)	16 - 19 MS/m

MECHANICAL STRENGTH

Min. tensile properties (Temper T351 / EN Standard 485-2)

Thickness (over ... to)	Rm [MPa]	Rp0.2 [MPa]	A50 [%]
1.0 – 1.5 mm	435	290	12
1.5 – 3.0 mm	435	290	14
3.0 – 7.9 mm	440	290	13
8.0 - 12.5 mm	440	290	11
12.5 - 40 mm	420	290	8
40 - 100 mm	400	285	7

Typical strength for various thicknesses

Thickness (over ... to)	Rm [MPa]	Rp0.2 [MPa]	A50 [%]	HB
1.0 – 1.5 mm	445	310	13	123
1.5 – 3.0 mm	445	310	14	123
3.0 – 7.9 mm	450	310	14	124
8.0 - 15 mm	450	310	15	125
15 - 25 mm	450	315	15	130
25 - 60 mm	450	310	14	125
60 - 102 mm	445	300	14	120