

AW-6082 RECTIFIED

EN AW-6082 T651

Rolled plate, precision milled both sides

TECHNICAL DATASHEET

Reference specification: STC-1388E

BRIEF DESCRIPTION

Precision plates in Alplan® 6082 are milled on both sides and have a very low level of residual stress, thus avoiding excessive deformation during machining.

Thanks to its very good dimensional stability and the elimination of surface milling operations, Alplan® 6082 plates enable to realise significant cost and time savings in machining, when compared to normal rolled plates.

PROCESSING METHODS

Weldability

- TIG/MIG filler metal excellent
AA 4043
AA 5356
- by resistance excellent

Anodisation

- technical excellent
- decorative good

* According to their processing conditions, precision plates in Alplan® 6082 feature a fibrous-recrystallized macrostructure which is revealed by anodisation. It is therefore recommended to validate the surface aspect of anodised components through a prototype part.

Machinability excellent

Corrosion behaviour

- excellent in inland atmosphere
- good in marine atmosphere

AVAILABILITY

Alplan® 6082 plates are available in temper T651 (quenched - stretched - artificially aged) in the following dimensions:

Thickness	Dimensions
6.0 - 12.0 mm	1650 x 4020 mm
12.0 - 50.0 mm	2020 x 4020 mm
50.0 - 120.0 mm	1520 x 4020 mm
(other dimensions on request)	

The plates are supplied with a protection film on both sides.

CHEMICAL COMPOSITION (weight %)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti
0.7	max.	max.	0.40	0.6	max.	max.	max.
1.3	0.50	0.10	1.0	1.2	0.25	0.20	0.10

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 T651)	150 - 170 W/mK
Electrical conductivity at 20°C (Temper T651)	24 - 28 MS/m

MECHANICAL STRENGTH

Min. guaranteed tensile properties (EN 485-2, temper T651)

Thickness (over ... to ...)	Rm [MPa]	Rp0.2 [MPa]	A50 [%]
= 6.0 mm	310	260	10
6.0 - 12.5 mm	300	255	9
12.5 - 60.0 mm	295	240	8
60.0 - 100.0 mm	295	240	7
100.0 - 120.0 mm	275	240	6

Typical strength for various thicknesses

Thickness (over ... to ...)	Rm [MPa]	Rp0.2 [MPa]	A50 [%]	HB
>= 6.0 - 25.0 mm	350	305	11	105
25.0 - 60.0 mm	350	310	11	105
60.0 - 120.0 mm	350	310	11	105

TOLERANCES

Thickness	Thickness tolerance
All	± 0.10 mm

Thickness (over ... to ...)	Longitudinal and transverse flatness*
>= 6.0* - 15.0 mm	max. 0.50 mm/m
15.0 - 120.0 mm	max. 0.35 mm/m
* no guaranteed flatness for thickness < 8.0 mm, indicative value 1.0 mm/m	

Thickness	Roughness Ra
All	max. 0.40 µm

SHAPING YOUR PROJECTS

Zona Industrial de Ovar - Rua do Brasil, N.º143 3880-108 Ovar - Portugal
T: +351 256 581 400 - Chamada para a rede fixa nacional
polylanema@lanema.pt



WWW.
POLYLANEMA.
PT

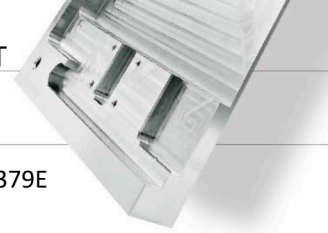
AW-7075 RECTIFIED

EN AW-7075 T651

High-strength rolled plate, precision milled both sides

TECHNICAL DATASHEET

Reference specification STC-1379E



BRIEF DESCRIPTION

Alplan® 7075 precision plates combine a good dimensional stability with high mechanical strength. Both the outstanding flatness and the low roughness of the surfaces, protected by a plastic film, make surface milling by the end user superfluous.

This combination of properties enables significant cost savings in machining.

Applications include reference plates, machine housings, transport tables, jigs, robot arms.

PROCESSING METHODS

Weldability

- TIG/MIG not suitable
- By resistance good

Anodising

- technical good
- decorative dark color not suited*

* please contact Constellium Valais SA in case of anodisation with aesthetic aspect requirements

Machinability excellent

Corrosion behaviour

- moderate in inland atmosphere
- critical in marine atmosphere

AVAILABILITY

Alplan® 7075 precision plates are available in temper T651 (quenched – stretched – artificially aged) in the following maximum dimensions:

Thickness	Dimensions
≥ 8.0 – 80.0 mm	1520 x 4020 mm
> 80.0 – 100.0 mm	1270 x 4020 mm
> 100.0 – 105.0 mm	1030 x 4020 mm
> 105.0 – 110.0 mm	1000 x 4020 mm
> 110.0 – 118.0 mm	930 x 4020 mm
≥ 10.0 – 50.0 mm	2020 x 4020 mm
(other dimensions and tempers on request)	

Plates are delivered with a protection film on both surfaces.

CHEMICAL COMPOSITION (weight-%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti
max. 0.40	max. 0.5	1.2 2.0	max. 0.30	2.1 2.9	0.18 0.28	5.1 6.1	max. 0.20

PHYSICAL PROPERTIES (nominal values)

Density	2.81 g/cm ³
Elastic Modulus	72000 MPa
Lin. thermal expansion coefficient (20°-100°C)	23.6 · 10 ⁻⁶ K ⁻¹
Thermal conductivity (Temper T651)	115 - 140 W/mK
Electrical conductivity (Temper T651, 20°C)	17 - 21 MS/m

MECHANICAL STRENGTH

Min. guaranteed tensile properties (Temper T651, EN 485-2)

Thickness (over ... to ...)	Rm [MPa]	Rp0.2 [MPa]	A50 [%]
≥ 8.0 - 12.5 mm	540	460	8
12.5 - 25.0 mm	540	470	6
25.0 - 50.0 mm	530	460	5
50.0 - 60.0 mm	525	440	4
60.0 - 80.0 mm	495	420	4
80.0 - 90.0 mm	490	390	4
90.0 - 100.0 mm	460	360	3
100.0 - 118.0 mm	410	300	2

Typical strength for various thicknesses

Thickness (over ... to ...)	Rm [MPa]	Rp0.2 [MPa]	A50 [%]
≥ 8.0 - 25.0 mm	575	510	10
25.0 - 60.0 mm	565	500	10
60.0 - 80.0 mm	540	465	9
80.0 - 95.0 mm	505	420	9
95.0 - 118.0 mm	490	390	9

TOLERANCES

Thickness	Thickness tolerance
All	± 0.10 mm

Thickness (over ... to ...)	Transverse and longitudinal flatness
≥ 8.0 - 15 mm	max. 0.75 mm/m
15 - 118 mm	max. 0.50 mm/m

Thickness	Roughness Ra
All	max. 0.40 µm

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