

BRIEF DESCRIPTION

ALPLAN[®] 2017A precision plates combine a very good dimensional stability with a high level of mechanical strength and elongation.

The outstanding flatness, the low roughness and high quality of the milled 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 and lateral panels, transport tables, jigs.

PROCESSING METHODS

Weldability

- TIG/MIG not suitable
- By resistance good

Anodising

- technical good
- decorative moderate*

* 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[®] 2017A precision plates are available in temper T651 (quenched – stretched – naturally aged) in the following dimensions :

Thickness	Dimensions
8 - 85 mm	1520 x 3020 mm
8 - 115 mm	1020 x 2020 mm

(other dimensions on request)

CHEMICAL COMPOSITION (weight-%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti +Zr
0.20	max.	3.5	0.4	0.4	max.	max.	max.
0.80	0.7	4.5	1.0	1.0	0.10	0.25	0.25

PHYSICAL PROPERTIES (nominal values)

Density	2.78 g/cm ³
Elastic Modulus	72000 MPa
Lin. thermal expansion coefficient (20°-100°C)	23.6 10 ⁻⁶ K ⁻¹
Thermal conductivity (Temper T651)	125 - 140 W/mK
Electrical conductivity (Temper T651, 20°C)	19 - 21 MS/m

MECHANICAL STRENGTH

Min. tensile properties (Temper T451, standard EN 485-2)

Thickness (over ... to)	Rm [MPa]	Rp0.2 [MPa]	A50 [%]
7.9 - 12.5 mm	390	260	13
12.5 - 40 mm	390	250	12
40 - 60 mm	385	245	12
60 - 80 mm	370	240	7
80 - 115 mm	495	420	6

Typical strength for various thicknesses

Thickness (over ... to)	Rm [MPa]	Rp0.2 [MPa]	A50 [%]	HB
7.9 - 25 mm	415	270	20	125
25 - 60 mm	415	265	20	125
60 - 115 mm	415	265	17	125

TOLERANCES

Thickness	Thickness tolerance
All	± 0.10 mm

Thickness	Transverse and longitudinal flatness
10 - 15 mm	max. 0.75 mm/m
15.1 - 80 mm	max. 0.50 mm/m

Thickness	Roughness Ra
All	max. 0.40 µm