

Airware[®] 2297-T87 PLATE

DESCRIPTION

Constellium patented Airware[®] 2297-T87 is a low density aluminium-based alloy, developed to provide high toughness, combined with an improved fatigue and damage tolerance balance versus incumbent alloys. Spectrum fatigue is typically 3 to 5 times higher than current available solutions, and those mechanical properties are achieved at a lower density. This product is also characterized by 8% higher modulus of elasticity and high corrosion resistance. Leveraging aluminium's infinite recyclability without property losses, Airware[®] 2297 can be repeatedly recycled.

APPLICATIONS

Airware[®] 2297 plates are especially suited for fatigue critical components. Moderate strength level with high damage tolerance and corrosion characteristics make it very attractive for frames, spars and bulkheads. It has been successfully utilized in applications which require cyclic exposure to elevated temperature, in the 110 °C (230 °F) range. Airware[®] 2297 plates were also used successfully for space applications which take advantage of the lower density and high modulus.

CHEMICAL COMPOSITION LIMITS (WT %)

Si	0.10 max
Fe	0.10 max
Cu	2.5 - 3.10
Mn	0.10 - 0.50
Mg	0.25 max
Li	1.1 - 1.7
Zr	0.08 - 0.15

(According to The Aluminium Association)

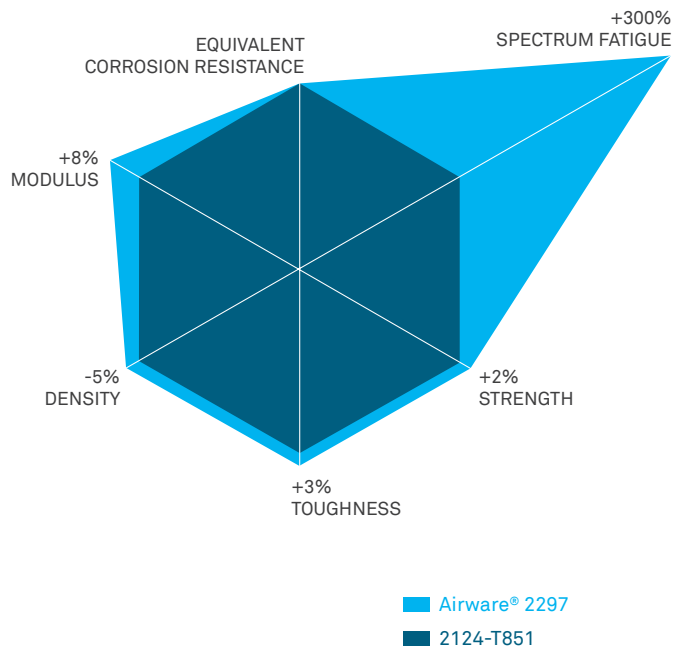
TEMPER

T87 temper is obtained through a conventional one step aging treatment as defined in AMS 2772. Thermal cycle was optimised to provide a balance of static strength and damage tolerance with excellent stress corrosion resistance.

MECHANICAL PROPERTIES Minimum values per AMS 4330

Thickness mm (in)	DIR		38.1 ≤ th ≤ 50.8 (1.5 ≤ th ≤ 2)	50.9 ≤ th ≤ 63.4 (2.001 ≤ th ≤ 2.5)	63.5 ≤ th ≤ 76.2 (2.501 ≤ th ≤ 3)	76.2 ≤ th ≤ 101.6 (3.001 ≤ th ≤ 4)	101.6 ≤ th ≤ 127 (4.001 ≤ th ≤ 5)	127 ≤ th ≤ 152 (5.001 ≤ th ≤ 6)
Tensile strength MPa (ksi)	L	min	441 (64)	434 (63)	427 (62)	427 (62)	421 (61)	414 (60)
Yield strength MPa (ksi)	L	min	400 (58)	393 (57)	393 (57)	393 (57)	386 (56)	379 (55)
Elongation %	L	min	10	9	9	5	5	5
Toughness K1c MPa√m (ksi√in)	L-T	Typ.	35.2 (32)	35.2 (32)	35.2 (32)	34.1 (31)	33 (30)	31.9 (29)
E (tension) Gpa (Msi)	L	Typ.	75.2 (10.9)					
Stress Corrosion Cracking MPa (ksi) ASTM G47	ST	max	207 (30)					
Density g/cm ³ (lb/in ³)		Typ.	2.65 (0.096)					

MATERIAL PERFORMANCE



EASE OF MANUFACTURING

Airware® 2297 is readily machined using current high speed machining technology. Distortion characteristics are generally lower than incumbent plate products. It is compatible with the current surface treatment and corrosion inhibitor technologies, as well as, well suited to advanced joining techniques, such as Friction Stir Welding.

Constellium patented recycling process permits 100% recycling of off-cuts and machining chips resulting from the manufacturing process.

AVAILABILITY

Airware® 2297 plates are available in the thickness range of 38 to 150 mm (1.50 to 6.00 in).

PROCUREMENT SPECIFICATIONS

Airware® 2297 is covered by AMS 4330B and MMPDS. Material Safety Data Sheet, A and B-values and a full data package are available on request.

INFORMATION

For additional information, please contact us via email : salesat@constellium.com.

The present brochure is not contractual, and shall, in no way, incur the liability of Constellium on account of the information contained herein. This information is given purely as a guide ; it is up to the readers to check that it is accurate and to consult Constellium and other specialists before use.

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