

## Reference Questions:

1. What is the Tensile strength limit for Beta Annealed Ti64 Plates as per the Specification for a 55mm plate?

**AIRBUS**

**AIMS03-18-007**

Issue 5  
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September 2021

### Airbus Material Specification

**Titanium alloy  
Ti-6Al-4V**

**β Annealed  
Plate**

Thickness 6,0 mm < a ≤ 100 mm  
High damage tolerance

From AIMS03-18-007 page 1:

8	Sample / test piece heat treatment			Is Annealed + Stress Relieved					
9	Dimension concerned		a	mm	6,0 < a ≤ 70		70 < a ≤ 100		
10	Thickness of cladding on each face		-	%	-				
11	Direction of test piece				L	LT	L	LT	ST
12	TENSILE	Temperature		θ	°C				
13		Proof stress		R <sub>p0.2</sub>	MPa		Room temperature		
14		Strength		R <sub>m</sub>	MPa		830		
15		Elongation		A	%		830		
16		Reduction of area		Z	%		900 ≤ R <sub>m</sub> ≤ 1160		
17	Hardness		HB	-		-			
18	Shear strength		R <sub>c</sub>	MPa		-			
19	Bonding		b	-					

From Page 5:

Answer should be 900<R<sub>m</sub><1160 MPa

2. What are the observed tensile Yield results for the Supplier VSMPO for Ti64 Beta Annealed Plates for thickness 55mm and what is the average of those values?

This qualification of VSMPO for Titanium alloy (Ti6Al-4V) β Annealed Plate 6,0 mm < a ≤ 100 mm with normal and special tolerance flatness (codes N and S) is required.

### QTR - Qualification Test Report

1 Qualification Management	
DOCUMENT TITLE	This qualification of VSMPO for Titanium alloy (Ti6Al-4V) β Annealed Plate 6,0 mm < a ≤ 100 mm with normal and special tolerance flatness (codes N and S) is required.
REFERENCE	QTR140830
RESPONSIBLE CENTER	S : Structure
DATE	29/01/2016
ITEM	M - Material

From QTR 140830 page 1:

Thickness	Batch	Location	Direction	UTS (MPa)	0.2% YS (MPa)	A%	Z%
55 mm	Batch 1	4/1	L	931	850	9.2	16.7
			LT	973	899	7.2	12.8
		4/2	L	949	866	8.4	13.4
			LT	976	904	7.6	19.0
		4/3	L	938	855	8.8	22.8
			LT	967	892	6.8	14.2
	Batch 2	4/1	L	946	860	8.8	17.1
			LT	949	866	10.4	21.0
		4/2	L	947	863	8.4	13.6
			LT	948	872	6.8	12.3
		4/3	L	952	867	12.8	18.0
			LT	933	860	6.4	22.4

Page 19, Table 7:

These are the observed values.

For the Average values, do the mean of these values highlighted.

The mean values are also given in Table 8 next page:

Table 8: tensile test average

Thickness	Average	Batch	Direction	UTS (MPa)	0.2% YS (MPa)	A%	Z%
10 mm	Average	Batch 1	L	965	891	10.1	13.3
			LT	978	892	10	15
		Batch2	L	980	913	11.8	13.7
			LT	973	895	12	13
16 mm	Average	Batch 1	L	969	890	7.8	16.8
			LT	967	882	9	19
		Batch2	L	977	900	7.5	17.6
			LT	967	884	8	18
35 mm	Average	Batch 1	L	925	844	7	15
			LT	931	838	8	13
		Batch2	L	935	856	8	12
			LT	944	863	9	14
55 mm	Average	Batch 1	L	939	857	9	18
			LT	972	898	7	15
		Batch2	L	948	863	10	16
			LT	943	866	8	19
90 mm	Average	Batch 1	L	952	865	8	15
			LT	986	909	8	14
		Batch2	L	939	859	7	15
			LT	938	859	8	15
AIMS 03-18-007		Min	900	830	5.0	10.0	
		Max	1160	-	-	-	