



"VSMPO-AVISMA Corporation"

1. Parkovaya St., Verkhnyaya Salda, Sverdlovsk reg.

624 760, RUSSIA

Phone (34345) 2-38-32, 2-17-66

Fax (34345) 2-47-36, 2-05-00

INSPECTION CERTIFICATE

EN 12063-1 AS 9100EN ISO 9001 CERT. № 01.117.048312

CERTIFICATE: 19994Y12B

Date: 28.09.2012

Purchaser: Tirus International SA, Switzerland

Quality/alloy: Ti6AL4V

Condition of delivery: Annealed

Contract: 84064101TNG Annex 36

Purchaser order: TISA-12-0008766/ Tirus US 27899-RM

Terms of delivery: MBBN 343 Iss.(08.1990), LN 9297.1991, AIMS 03-18-003 Iss. 5



Sheet №	Units	Weight, (kg)	Object	Dimensions (mm) or Drawing №	Heat №	Lot №
1 - 3, 6, 7, 9 - 20 22-30	26	952	SHEET	3,3 ^{+0.2} x 914,4 ^{+0.5} x 2743,2 ^{+10.0}	8-07-01872-1	24933

Chemical Composition, %	Ti-remainder										Residuals, %	
	Al	V	O	Fe	C	N	H	Y			each	total
Requirement:	5.50-5.50	3.50-4.50	max 0.20	max 0.30	max 0.08	max 0.05	In the Part, %	max 0.008	max 0.005		max 0.10	max 0.40
AMS 03-18-003 Iss. 5	5.75	4.50	0.20	0.30	0.08	0.05	#	0.008	0.005		<0.10	0.083
MBBN 343.1 AMS 4911N	6.53	4.09	0.146	0.20	0.007	0.003	See Annex 1	<0.001			<0.10	0.084
TOP	6.57	4.10	0.142	0.19	0.007	0.004						
BOTTOM												

Macrostructure testing: N/A

Microstructure testing: As per DIN 65039/04-83 par. 3.2.3.3.

AIMS 03-18-003 Iss. 5 par. 30 amount of alpha-phase: 65%, 65%

par. 34 grain size # 13.5, # 13.0

par. 74 material without surface contamination.

AMS 4911N par. 3.5.3.3, 3.5.4.2

Ultrasonic inspection: N/A

Requirement:	0.20% proof stress		Tensile strength		Elongation %	Heat treatment	
	MPa	min	MPa	min		T °C	time
AMS 4911N							
AMS 03-18-003 lbs. 5							
MBBN 343.1		870		925	10		
Longitudinal							
1	985		1045		14.4		
6	987		1035		14.0		
16	1008		1071		14.8		
23	998		1056		14.6		
30	1009		1061		14.4		
Transverse							
1		921		1005	14.4	770	40 min
6		941		1016	15.8	air cooling	
16		928		1020	12.5		
23		932		1014	14.8		
30		939		1016	14.8		
Longitudinal							
1			985		1045		
6			987		1035		
16			1008		1071		
23			998		1056		
30			1009		1061		
Transverse							

Nonflatness Code "N"

Ra < 0.6 mikm

Mercury free.

Annex 1 enclosed

Sheets are manufactured in accordance with Method MP 39.007 CA-2006 Rev. NC.

Production start-up date: 05.07.2012

Prepared by

Dushina A.A.

signature

Page 1 of 3



AVISMA Corporation®

ANNEX TO
INSPECTION
CERTIFICATE

EN 10204-1 AS 9100EN ISO 9001 CERT No 01 117 043312

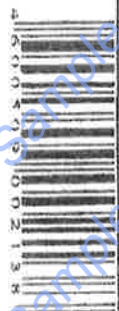
ANNEX 1 TO CERTIFICATE 19994Y12B

Requirement:	Sample #	Bend test Angle	Sample #	In the Part, % H	Requirement:	Sample #	Bend test Angle
MIBN 343.1	1	Transverse 105°	1	max 0,008	AIMS 03-18-003 Iss. 5	6	Transverse 105°
	6	105°	2	0,0052		30	Longitudinal 105°
	16	105°	6	0,0058			
	23	105°	7	0,0056			
	30	105°	9	0,0034			
			10	0,0056			
			11	0,0060			
			12	0,0042			
			13	0,0072			
			14	0,0050			
			15	0,0049			
			16	0,0057			
			17	0,0050			
			18	0,0049			
			19	0,0072			
			20	0,0055			
			22	0,0072			
			23	0,0064			
			24	0,0068			
			25	0,0054			
			26	0,0066			
			27	0,0050			
			28	0,0074			
			29	0,0070			
			30	0,0064			
			3	0,0068			
				0,0062			

Prepared by Dushina A.A.
Name Dushina A.A.

signature

stamp





"VSMPO-AVISMA Corporation"

1, Parkovaya St., Verkhnyaya Salda, Sverdlovsk reg.
624 760, RUSSIA
Phone (34345) 2-39-32, 2-17-96
Fax (34345) 2-47-96, 2-05-00

**ANNEX TO
INSPECTION
CERTIFICATE**

EN 10204-3.1 AS 9100/EN ISO 9001 CERT. № 01 117 0463-2

**ANNEX 2 TO CERTIFICATE 19994Y12B
SHEET THICKNESS MEASUREMENT RESULTS**

3.3

Contract: 84054101TNG Annex 36

Lot 24933

Heat 8-07-01872-1 Sheet Thickness, mm

Sheet #	1	2	3	4	5	6	7	8	9
1	3.13	3.20	3.20	3.15	3.15	3.17	3.10	3.08	3.14
2	3.27	3.32	3.28	3.26	3.19	3.20	3.18	3.20	3.27
3	3.24	3.28	3.26	3.22	3.17	3.20	3.13	3.20	3.25
6	3.22	3.28	3.25	3.23	3.17	3.21	3.18	3.22	3.27
7	3.26	3.30	3.28	3.26	3.23	3.23	3.20	3.24	3.26
9	3.18	3.27	3.20	3.26	3.27	3.32	3.27	3.26	3.31
10	3.21	3.28	3.25	3.22	3.16	3.21	3.18	3.22	3.29
11	3.17	3.18	3.16	3.23	3.23	3.26	3.25	3.22	3.25
12	3.24	3.27	3.26	3.21	3.27	3.29	3.26	3.29	3.30
13	3.28	3.29	3.30	3.30	3.30	3.29	3.26	3.29	3.32
14	3.26	3.34	3.24	3.24	3.15	3.25	3.22	3.23	3.29
15	3.25	3.33	3.26	3.27	3.26	3.31	3.25	3.24	3.33
16	3.25	3.32	3.28	3.26	3.21	3.27	3.22	3.22	3.31
17	3.24	3.31	3.26	3.25	3.23	3.28	3.22	3.22	3.28
18	3.24	3.28	3.20	3.20	3.23	3.28	3.23	3.24	3.29
19	3.29	3.35	3.26	3.24	3.24	3.27	3.27	3.28	3.31
20	3.29	3.31	3.28	3.25	3.23	3.29	3.27	3.27	3.28
22	3.27	3.31	3.29	3.27	3.22	3.25	3.23	3.24	3.25
23	3.27	3.32	3.30	3.27	3.27	3.30	3.23	3.29	3.30
24	3.24	3.28	3.24	3.22	3.21	3.20	3.22	3.24	3.27
25	3.28	3.32	3.28	3.22	3.19	3.27	3.29	3.24	3.30
26	3.29	3.32	3.28	3.28	3.30	3.34	3.29	3.32	3.32
27	3.23	3.30	3.26	3.28	3.30	3.34	3.27	3.22	3.29
28	3.30	3.35	3.33	3.28	3.29	3.35	3.28	3.29	3.35
29	3.24	3.28	3.23	3.26	3.28	3.32	3.25	3.25	3.30
30	3.21	3.28	3.24	3.26	3.28	3.32	3.27	3.29	3.30

Prepared by Dushina A.A.
Name Dushina A.A.

Signature

Stamp

