



"VSMPO-AVISMA Corporation"



Cert 09228Y16A

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

624 760, RUSSIA

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INSPECTION CERTIFICATE

Heat 8-41-09120



Lot 1 23978

SABRE, Edition 2, Revision 1

EN 10204-3.1, AS 9102EN ISO 9001, CERT. No. 01 117 04312

CERTIFICATE: 09228Y16A

Purchaser: Tirus International SA, Switzerland

Quality/alloy: Ti-6Al-4V

Condition of delivery: Annealed

Terms of delivery: AMS 4911N, ASTM B 265-15, AMS-T-9046B AB-1, ASTM F 1472-14, S-400 18/05/2015, S-1000 29/05/2015, QD 4.6-40 Iss. 7, MIL-T-9046J

Date: 29.05.2016

Contract: 840541091NG Annex 11

Purchaser order: 15-0015867/31914.RM.

Sheet #	Units	Weight, (kg)	Object	Dimensions (mm) or Drawing #	Heat #	Lot #
1 - 6, 8 - 18, 20 - 30	28	454	Sheet	1,6 x 914,4 x 2438,4 (.063" x 36" x 96")	8-41-09120	23978

Requirement:	Chemical Composition, %										Residuals, %	
	AMS 4911N, AMS-T-9046B AB-1, ASTM B 265-15, ASTM F 1472-14, MIL - T - 9046J					Ti-remainder					each	total
	Al	V	C	Fe	O	N	Y	In the Part, %		H		
TOP	5.50 - 6.75	3.50 - 4.50	max 0.08	max 0.30	max 0.20	max 0.05	max 0.005	max 0.0125	Sample #	max 0.0125	5	0.0051
BOTTOM	6.50	4.18	0.013	0.18	0.166	0.004	<0.001	<0.001				
	6.35	4.23	0.012	0.17	0.158	0.004						0.084

Requirement:	0.20% proof stress		Tensile strength		Elongation		Sample #	Bend test angle	Sample #	Bend test angle	Heat treatment conditions	
	MPa	ksi	MPa	ksi	%	%					T, °C	time
ASTM F 1472-14	min	min	min	min	min	min		Long		Long		
ASTM B 265 15	min	min	min	min	min	min		Transverse		Transverse		
AMS 4911N	869	920	920	1028	14.2	10	1	105°	16	105°	790	60 min
	10	961	1028	1029	11.8	10	2	105°	17	105°	air cooling	
	20	965	1029	1029	11.8	10	3	105°	18	105°		
	10	952	1017	1017	12.6	10	4	105°	20	105°		
	20	933	1001	1001	14.2	10	5	105°	21	105°		
		ksi	ksi	ksi	%		6	105°	22	105°		
MIL - T - 9046J	min	min	min	min	min	min	8	105°	23	105°		
AMS-T-9046B AB-1	min	min	min	min	min	min	9	105°	24	105°		
	126	134	134	134	10	10	10	105°	25	105°		
	10	139.3	149.1	149.1	14.2	10	11	105°	26	105°		
	20	139.9	149.2	149.2	11.8	10	12	105°	27	105°		
		ksi	ksi	ksi	%		13	105°	28	105°		
	10	138.0	147.5	147.5	12.6	10	14	105°	29	105°		
	20	135.3	145.1	145.1	14.2	10	15	105°	30	105°		

Macrostructure testing: N/A

Microstructure testing: As per AMS 4911N par.3.5.3.2, 3.5.4.2; AMS-T9046 B AB-1 MIL - T - 9046J par. 3.8, 3.11; ASTM F 1472-14 par. 9.1, 9.3;

Material without surface contamination.

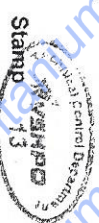
Ultrasonic inspection: N/A

We certify that, subject to acceptance of conditions listed hereafter, the supplier detailed here, were manufactured in accordance with the technical specifications of the contract order or sub-order, and that, all inspections operations and tests, having been completed, the supplier comply in every respect with the relevant particular specifications, drawings, and relevant standards and regulations in force. Information particular to the supplier denoted. Intentional particular to the supplier granted.

VSMPO-AVISMA Corporation has complied with all producer requirements of AS6279 Ingot melted by VSMPO, Verkhnyaya Salda, Russia Production start-up date: 03.03.2016

Approved by Dushina A.A.

Signature



IG 09/14/2016

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