



"VIMPO-AVISMA Corporation"

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INSPECTION CERTIFICATE

62642

CERTIFICATE No 03878Y11A

Purchaser: Tinus International S.A. Switzerland
Quality/valley: LIBALAY

date 20.03.2011

Contract: 84054184TRD Annex 2

Purchaser order: Tinus US PO # 26285 RM, 10-0005385

Condition of delivery: Hot Rolled, Annealed, Machined & Pickled

Bars No: 344

Weight (kg): 799

Dimensions (mm) or Drawing No: dia 15.975^{+0.015} x 2438.4-3657.6 (dia .625^{+0.007} x 8' - 12')

Heat No: 505

AMS-T-9047A, MIL-T-9047G, LAWD1-4426

Requirement	Al	V	Fe	H	N	O	C	Y
AMS 4928R, AMS 6931A	5.5 - 6.75	3.5 - 4.5	max 0.30	max 0.0125	max 0.05	max 0.20	max 0.08	max 0.005
AMS-T-9047A	6.75	4.5	0.30	0.0125	0.05	0.20	0.08	0.005
ASTM B 348-13 Gr. 5	6.28	4.12	0.20	0.0092	0.0068	0.152	0.028	<0.0010
MIL-T-9047G	6.15	4.02	0.26	<0.0072	0.010	0.182	0.029	<0.0010
TOP								
BOTTOM								

Requirement	Tensile strength	Elongation	Reduction	Sample	Heat treatment
AMS 4928R	min 862	min 10	min 25	1/2 R	730 °C, 1 h air cooling
AMS-T-9047A	min 931	10	25	Actual	
AMS 6931A	min 862	min 10	min 25	TOP	730 °C, 1 h air cooling
MIL-T-9047G	min 931	10	25	Actual	
TOP					
BOTTOM					

Requirement	0.2% proof stress	Tensile strength	Elongation	Reduction	Sample	Heat treatment
AMS 4928R	min 862	min 931	min 10	min 25	1/2 R	730 °C, 1 h air cooling
AMS-T-9047A	min 931	min 931	10	25	Actual	
AMS 6931A	min 862	min 931	min 10	min 25	TOP	730 °C, 1 h air cooling
MIL-T-9047G	min 931	min 931	10	25	Actual	
TOP						
BOTTOM						

Residue max. %

each	total	In part, %
6-1	max 0.10	0.0028
6-1	max 0.10	0.0031
11-1	max 0.154	0.0092
12-1	max 0.155	0.0028
15-2	max 0.10	0.0032

Macrostructure testing As per AMS-T-9047A, MIL-T-9047G par. 3.9; AMS 4928R par. 3.6; AMS 6931A, par. 3.5.1.4

Microstructure testing As per AMS 4928R, AMS 6931A, par. 3.5.1.2.2; 3.5.1.3 (free from alpha-phase)

Ultrasonic inspection As per AMS-STD-2154 (99 2005) Cl. A, Longitudinal wave, Type I; MIL-STD-2154 (30 09 1982) Cl. A, Longitudinal wave, Immersion method

Focused irradiation

Requirement	0.2% proof stress	Tensile strength	Elongation	Reduction	Sample	Heat treatment
AMS 4928R	min 862	min 931	min 10	min 25	1/2 R	730 °C, 1 h air cooling
AMS-T-9047A	min 931	min 931	10	25	Actual	
AMS 6931A	min 862	min 931	min 10	min 25	TOP	730 °C, 1 h air cooling
MIL-T-9047G	min 931	min 931	10	25	Actual	
6-1	927	1018	17.2	47.9	TOP	730 °C, 1 h air cooling
7-1	920	1018	18.0	49.3	BOTTOM	
8-1	926	996	17.6	49.4	1018	
9-1	919	1013	17.2	49.7		
11-1	910	1002	17.2	51.6		
12-1	928	1019	17.6	49.8		
13-1	928	1019	18.4	50.2		
15-2	918	1001	18.0	52.8		

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

signature



Inspected in accordance with Method MP 39.050 BO-97 Rev. C





VSIPO-Titus, US
Pittsburgh, PA

INSPECTION REPORT

Form# 0069
Rev. 1
1 Jan 2011

Alloy:	6-4	VSIPO P.O.#:	26285-RM	Inspected By:	<i>[Signature]</i>	Date:	3-6-15
Form:	BAR	Length Tol:	±.12"	QA Approval:	<i>[Signature]</i>	Date:	3-6-15
Size:	625"	Width (Ø) Tol:	±.007	Thickness (t) Tol:	NA	Invoice #:	Q-D-13

1297	0-26-08311	172	14	.624	.623	106/9	A
			7	.623	.623	107/2	A
			8	.622	.623	100/2	A
			12	.621	.620	115	A
			14	.624	.624	115 1/2	A
			6	.623	.623	108 1/2	A
			9	.623	.624	114 3/4	A
			10	.622	.622	105 1/2	A
			13	.621	.621	107 1/2	A
			6	.624	.624	107 3/8	A
			14	.624	.624	102	A
			9	.623	.623	111 3/4	A
			11	.624	.625	102 1/2	A
			6	.624	.624	99 1/4	A
			10	.622	.622	103 3/8	A

Special Markings: AMS-1 98477A VSMRb H4# T1 CAL4V Tool ID: TM-18

Visual Inspection: OK Tool ID: DMIC-1