



"VIMPO-AVISMA Corporation"

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INSPECTION CERTIFICATE

62642

CERTIFICATE No 03878Y11A

date 20.03.2011

Contract: 84054184TRD Annex 2

Purchaser: Tins International S.A. Switzerland
Quality/valley TIBALAY

Condition of delivery Hot Rolled, Annealed, Machined & Pickled

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

Terms of delivery: AMS 4928R, AMS 8931A, Rev A, ASTM B 348-13 Gr.5
AMS-T-9047A, MIL-T-9047G, LAWD1-4426

Bars No U r1ce 344

Weight (kg) 799

Ob/act BAR

Dimensions (mm) or Drawing No dia 15,975^{+0.015} x 2438,4-3657,6 (dia: 625^{+0.015} x 8'-12")

Heat No 0-28-08311

Lot No 505

Chemical Composition, %

Requirement	Al	V	Fe	H	N	O	C	Y	Residue max, %	In part, %
	each	total	each	total	Sample	as-picked				
AMS 4928R, AMS 8931A AMS-T-9047A	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	max 0.10	max 0.40
ASTM B 348-13 Gr.5 MIL-T-9047G	6.28	4.12	0.20	0.002	0.008	0.162	0.028	<0.0010	<0.10	0.0092
TOP	6.15	4.02	0.26	<0.0012	0.010	0.182	0.029	<0.0010	<0.10	0.0028
BOTTOM										15.2

Requirements

ASTM B 348-13 Gr.5 AMS 4928R AMS-T-9047A AMS 8931A MIL-T-9047G	0.20% proof stress MPa	Tensile strength MPa	Elongation %	Reduction %	Sample #	Heat treatment T °C time
	min 862	min 931	10	25		
	927	1018	17.2	47.9	TOP	730 °C, 1 h
	920	1018	18.0	49.3	1010	
	8-1 926	996	17.6	49.4	BOTTOM	air cooling
	9-1 919	1013	17.2	49.7	1018	
	11-1 910	1002	17.2	51.6		
	12-1 928	1019	17.6	49.8		
	13-1 928	1019	18.4	50.2		
	15-2 898	1001	18.0	52.8		

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

Microstructure testing As per AMS 4928R, AMS 8931A par. 3.6.1.2.2; 3.6.1.3 (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

Production start-up date: 06.03.2011.
Bars Heat treated: 730°C, 1 h, air cooling.
Inspected in accordance with Method MP 39.050 BO-97 Rev. C
Diameter tolerance per AMS 2241 R

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

signature



