



"VSMPO-AVISMA Corporation"

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INSPECTION CERTIFICATE

EN 10204-3.1 AS 9100/EN ISO 9001 CERT. № 01 117 048312

CERTIFICATE № 12292Y11

Purchaser : Tirus International SA, Switzerland date: 10.08.2011
Quality/alloy: GRADE2 Condition of delivery: Hot Rolled, Machined, Annealed, Pickled

Contract: 84054105TDD Annex 13
Purchaser order: 26483-RM
Terms of delivery: ASTM F 67-06



Item №	Units	Weight, (kg)	Object	Dimensions (mm) or Drawing №	Heat №	Lot №
	15	23	Pickled BAR	dia 12, 7±0.18 x 2438-3048	8-03-03546	989-1

Requirement	Chemical Composition, %						Residuals, max. %
	O	Fe	C	N	H	Samples In the Part as-pickled H (%)	
ASTM B 348-13 Gr.2	max 0.25	max 0.30	max 0.08	max 0.03	max 0.015		
ASTM F 67-06	0.142	0.031	0.010	0.003	0.002		
TOP	0.152	0.027	0.006	0.003	0.002	1	
BOTTOM						<0.002	

Requirement	0.20% proof stress		Tensile strength		Elongation		Reduction		Beta-temperus		Heat treatment	
	MPa	min	MPa	min	%	min	%	T, °C		T, °C	time	
ASTM B 348-13 Gr.2	325	275	453	345	32.4	20	65.5					
ASTM F 67-06	327	275	452	345	33.6	20	64.3					
	Longitudinal										650 air cooling 1 h	

Macrostructure testing N/A
Microstructure testing As per ASTM F 67-06 par. 9.1:
(free from alpha-case).
Ultrasonic inspection N/A

We certify that, subject to exceptions or concessions listed hereafter, the supplies 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 supplies comply in every respect with the relevant particular specifications, drawings and relevant standards and regulations in force. Information particular to the supplies delivered, specify the reference of concessions granted.

Bar Heat Treatment 650° C, 1 h, air cooling.
Mercury Free.
Production start-up date: 13.05.2011
Diameter tolerance per par. 4 ASTM B 348-10 ±0.18 mm

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

signature

