



"VSMPO-AVISIMA Corporation"

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# INSPECTION CERTIFICATE

EW 1020-3.1 AS 9102DEN ISO 9001 CERT. No 01 117 048312



**CERTIFICATE** No 24233Y11A

Date: 10.11.2011

Purchaser : Tirus International SA, Switzerland

Condition of delivery: Hot Rolled, Machined, Annealed, Pickled, Ground, (Without subsequent pickling)

Contract: 84054105TDD Annex 32  
Purchaser order: 27423-RM  
ASTM F 67-06  
ASTM B 348 -13

Terms of delivery: ASTM F 67-06  
ASTM B 348 -13

Item No 96 Units 149 Weight, (kg) BAR

Object BAR  
Dimensions (mm) or Drawing No dia 12,7 x 2000-3000

Heat No 8-42-05709 Lot No 943-1

Residuals, max. %

Requirement	Chemical Composition, %				Ti-remainder		In the Part	
	O	Fe	C	N	as-pickled.	H (%)		
ASTM B 348 - 13 ASTM F 67-06	max 0,25	max 0,30	max 0,08	max 0,03	max 0,015	max 0,015		
TOP	0,166	0,048	0,004	0,002	1	0,0044		
BOTTOM	0,148	0,049	0,004	0,001				

Macrostructure testing N/A

Microstructure testing As per ASTM F 67-06 par. 9.1.  
(free from alpha-case).

Ultrasonic inspection AMS 2631C Cl. AA. Longitudinal wave.  
Immersion method. Focused transducers.

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 articles 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: 01.10.2011  
Diameter tolerance per ASTM E 67-06 h11 (+0/-0,130 mm)

Prepared by Dushina A.A.

Name Dushina A.A.

signature

stamp

