

INSPECTION CERTIFICATE



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Quality Management System complies
to AS 9100/ISO 9001,
CERT. No 91 117 048312
Certificate is issued per
requirements of EN-10204-3.1



65H33

CERTIFICATE:	22278Y20	Date:	18.11.2020
Heat #	8-47-01268	Lot #	527
Purchaser:	Tirus International SA, Switzerland	Contract	28029110TVY Annex 48
Quality/alloy	GRADE5	Purchaser order	20-0028627/DO-0013812/0118 35/7123
Condition of delivery	Hot Rolled, Annealed, Machined, Pickled		
Terms of delivery	ASTM B 348/B348M - 19 November 2019		

Units	Weight, (kg)	Length, (m)	Object	Dimension (mm) or Drawing #
92	1088	—	Bar	31,75+0,10/-0,08 x 3048-3680 D=1.25"

Chemical Composition, %					
Requirement: ASTM B 348/B348M - 19 November 2019					
Ti-remainder	Chemical element	Limit	TOP	BOTTOM	Mercury Free. Radiation Free. Ingot melted by VSMPO, Verkhnyaya Salda, Russia. Melting date: 17.02.2020 Production start-up date: 18.02.2020 Ingot: double VAR
	Al	5,50-6,75	6,57	6,65	
	Fe	max 0,40	0,14	0,21	
	N	max 0,05	0,009	0,008	
	O	max 0,20	0,180	0,181	
	C	max 0,08	0,026	0,026	
Residuals, %	V	3,50-4,50	4,24	4,33	
	each	max 0,10	<0,10	<0,10	
	total	max 0,40	0,068	0,082	

Macrostructure testing: N/A

Microstructure testing: N/A

Ultrasonic inspection: N/A

Heat treatment conditions

T °C (°F) time
730 (1346) 1h air cooling

BTT T °C (°F)
1/2R actual
Top 1018 (1864)
Bottom 1023 (1873)

Mechanical characteristic	0,2% proof stress MPa	Tensile strength MPa	Elongation %	Reduction %	Cutting direction
Requirement:					
ASTM B 348/B 348M-19	min 828	min 828	min 10	min 25	
Sample #					
10-2	943	1016	18,8	47,8	Longitudinal
1-1	924	1002	19,2	49,9	

In part, % as-pickled

H	Sample #	on finished bars max 0,015
	1-1	0,0058
	10-2	0,0053

Additional information

Straightness max 1,5 mm at 1000 mm

Approved by _____ Signature _____ Stamp #11 Technical Control Department 18.11.2020 Page 1 of 2

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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;			
Approved by Signature Stamp #11 TMS Titanium Sample Cert Baseline M.A. 22.11.2020 Page 2 of 2			