

5829.2

CERTIFICATE OF REPORT NF & M INTERNATIONAL, INCORPORATED

1729 PENNSYLVANIA AVENUE, MONACA, PENNSYLVANIA 15061 Ph. 724-774-9200/FAX 724-728-2544

Customer:	Ship To:

NF&M Work Order	Ingot No.	Size	Customer P.O.
AC958	9-35-4383	6.00 X 12.00 In RCT	5829
NF&M Sales Order	Material	Description	Report Date
046389-00	Titanium 6-4	ANNEALED RECTANGLE	3/9/2015

SPECIFICATIONS: AMS4928U

INGOT CHEMISTRY (From ingot Source)

Element / Sample	T	B	
Aluminum (%)	6.32	6.30	
Vanadium (%)	3.87	4.11	
Iron (%)	0.17	0.14	
Carbon (%)	0.014	0.010	
Nitrogen (%)	0.028	0.035	
Oxygen (%)	0.156	0.161	
Yttrium (%)	<0.001	<0.001	
Others, Each (%)	<0.10	<0.10	
Others, Total (%)	0.074	0.069	
Calc. Beta Trans (F)	1830	1832	+/-25°F
Titanium, Balance			

Melt Method: Double VAR Input Diameter: 18 In Ingot Source: VSMPO-AVISMA CORP, RUSSIA

PRODUCT CHEMISTRY

Sample	2B	
Hydrogen (ppm) surface	27	Hot extraction method.

TENSILE PROPERTIES (HEAT TREAT ID 1) (FULL SECTION PROPERTIES)

Sample/Dir	2B/L	2B/LT	2B/ST
Ultimate (KSI)	131	134	134
Yield (KSI)	121	124	123
(0.2% offset)			
4D Elongation (%)	17	13	12
Reduction (%)	33	26	27

HEAT TREATMENT

Treat ID: 1	Type: MILL
1) Temp (F): 1300	Duration (Hrs): 2 Cooling Method: AC

MACRO

Acceptable to AMS2380 REV. F, LEVEL 20, 30

MICRO

Acceptable to AMS 4928U Para 3.5.1.2.1

NF&M Work Order	Ingot No.	Size	Customer P.O.
A0958	8-35-4383	6.00 X 12.00 In RCT	5829
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046389-00	Titanium 6-4	ANNEALED RECTANGLE	3/9/2015

SPECIFICATIONS: AMS4928U

REMARKS

Material conforms to the requirements of this purchase order.
 ALLOY TYPE TESTING - OK
 All properties performed at room temperature unless specified otherwise.
 All testing performed at NF&M INTERNATIONAL unless specified otherwise.
 No Alpha Case Present.
 Billet Map Attached.

SHIPPING DATA

Weight: 763g

QUALITY CONTROL



STEVE FITZGERALD, LAB TECHNICIAN CLASS 2



THE RECORDING OF FALSE, FICTITIOUS, OR FRAUDULENT STATEMENTS OR ENTRIES ON THE CERTIFICATE MAY BE PUNISHABLE AS A FELONY UNDER FEDERAL LAW.

THE TEST REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT WRITTEN APPROVAL OF NF&M QUALITY



MATERIAL LAYOUT DATA SHEET

F-402-01

1729 Pennsylvania Ave.
Monaca, PA 15061-1852

Revision Date/Level
16-Nov-07 Rev. 1

P.O. A0958 INGOT NO. 8-35-4383 SPECIFICATION AMS4928U

The following material conforms fully with the reference specifications after the removal of surface cracks, sonic indications, and cropping of ends. The following sections of material were not shipped for the reasons give below indicated by numbers and given lengths.

- | | | | |
|----------------------|----------------------|----------------------|--------------------------------|
| 1. Properties | 6. Beta Fleck | 11. Surface Defects | 16. Over Heating |
| 2. Macro Slice | 7. Macro Variation | 12. Inclusion | 17. Held in Stock |
| 3. Cut Back | 8. Micro Variation | 13. Voids, Porosity | 18. High H ₂ |
| 4. Segregation Alpha | 9. Enfoiliation Pipe | 14. Sonic Indication | 19. Other (Specify) - |
| 5. Segregation Beta | 10. Pipe | 15. Dimensions | "6" Indicates sections shipped |

