

	<input checked="" type="checkbox"/> RTI NILES 1000 WARREN AVE. NILES, OHIO 44446		DATE JAN 17 2014	SALES ORDER NO. 206443	GRADE 6AL-4V	PACKING LIST NO. 80397243
	CUSTOMER NAME, ADDRESS THE PERRYMAN COMPANY					CUSTOMER ORDER NO. 039626
IDENTIFICATION & REFER MATERIAL NUMBER		INGOT NO 8J38027	LOT 01	S-R 00	MATERIAL BETA FORGED & CONDITIONED TI BLOOM CL. 22	
PRODUCTION ORDER 30183106		SPECIFICATION P160 DTD 10/2/13, AS9100C, ANSI/ASQC-1				

CHEMISTRY: INGOT (AVERAGE of TOP-CENTER-BOTTOM) INGOT (AVERAGE of TOP-BOTTOM) FINAL PRODUCT

ELEMENT	TOP	CENTER	BOTTOM	TEST INFORMATION		FRACTURE TOUGHNESS KSI√IN		
C	.029		.017	TEST	LAB	Specimen Size:		
N	.006		.008	Alloy Chemistry -		ID	Toughness #	Val Ck
Fe	.18		.16	PD & Ru Only	Dirats Laboratories, Westfield, MA			
Al	6.10		6.04	Balance of Tests	RTI-Niles, Niles, OH			
V	4.03		3.99					
O	.16		.16					
Y	<50 PPM		<50 PPM		RESIDUAL ELEMENTS, EACH <10%			
Pd	<.002		<.002		RESIDUAL ELEMENTS, TOTAL <.30%*			
Ru	<.002		<.002					
				CHEMISTRY TEST METHODS:				
				ALLOY CHEM: ICP-OE				
				O2/N2: ASTM E 1409				
				HYDROGEN: ASTM E 1447				
				CARBON: ASTM E 1941				
TI BALANCE								
FINAL PRODUCT	HYD(PPM)	TIA 4 (.0004%)	B1A 12 (.0012%)	1/4 INCH BELOW SURFACE: TIA 23 (.0023%)		B1A 42 (.0042%)		

PROPERTIES		L		T		B		R		This certificate shall not be reproduced except in full without written approval of the RTI International Metals, Inc. lab at which it was prepared. The recording of false, fictitious, or fraudulent statements or entries on this documents may be punished as a felony under federal law.
ULTIMATE KSI										
YIELD (.2%) OFFSET										
% ELONGATION (INCHES)										
% REDUCTION IN AREA										
BEND 105 HARDNESS										
BEND 180										
STATIC NOTCH										
BETA TRANSUS	DTA: T1A 1820°F +/- 10°F (993°C +/- 6°C) B1A 1830°F +/- 10°F (999°C +/- 6°C)									
CREEP										
ULTRASONIC										
HEAT TREAT/TEST FORGE										

SHIPPING			OTHER DATA:		
NO. OF PIECES	8		INGOT WAS MELTED AT RTI NILES, NILES, OHIO, USA.	MELT METHOD: PAM + VAR	
WEIGHT (LBS)	18,259				
SIZE (IN)	9.00 X DIA X R/L				
TEST PIECES	X X				

THIS IS TO CERTIFY THAT THE ABOVE TEST RESULTS ARE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY AND CONFORM TO ORDER REQUIREMENTS

MATERIAL IS FREE OF MERCURY AND RADIOACTIVE CONTAMINATION AND HAS NO WELD REPAIR.

MATERIAL PRODUCED IN ACCORDANCE WITH ISO 9001:2008 AND AS9100C APPROVAL.

AIRBUS MAT/CON/353

NAME/TITLE: WILLIAM A. COLLETTA, JR., CERTIFICATIONS SPECIALIST/GR

SIGNED: *William A. Colletta*

DATE: 1-15-14



Perryman company
 213 Vandale Drive Houston, PA 15342 USA
 phone: 724-746-9390 fax: 724-746-9392

CERTIFIED TEST REPORT

Customer:

Heat No: 8J38027
 Melting Source: RTI INTERNATIONAL METALS, USA
 Work Order No: 079276

Date: 06-13-14
 Weight: 621 LBS.

Customer Order No: 29-346612 - |
 Customer Order Date: 04-17-14
 Specification: \ AMS 4928U
 \ ASTM B-348-13 Grade 5
 \ AMS 6931C, AMS-T-9047A
 \ AMS 4967K, MIL T 9047G AMEND 2

Product: \ Ti-6AL-4V .3745/.3755" DIA. CG BAR X 12' RL
 Condition: \ ANNEALED 1400 F - 2 HOURS

Chemistry: Wt % ASTM E 1447: Post processing Hydrogen Determination \ H: .0028

Metallographic Examination: ASTM E 407: \ Microstructure - Equiax alpha-beta
 \ Macrostructure - Acceptable
 ETTC photomicrograph A1
 ASTM E 407: \ Surface Contamination - No alpha case

Mechanical Properties:

Condition	Tensile Results - ASTM E8			
	Tensile Strength ksi	.2% Yield Strength ksi	Elongation 4D %	Reduction Of Area %
Annealed 1400 F - 2 hours	153.8	138.6	19	45
	153.0	138.1	19	45
Solution treated and aged 1750 F - 1 hour - WQ 1000 F - 4 hours - AC	177.8	165.4	12	51

\ Ultrasonic inspection to AMS 2631D Class A1, AMS-STD-2154 Class A, and MIL-STD-2154 Class A - Passed

This is to certify that all test results conform to the specifications listed above and that all tests required were performed by Perryman Company.
 \ This material did not come in direct contact with mercury or radioactive contamination while processed at Perryman Company.
 \ No weld repair was performed on product at Perryman Company.
 Attached is a copy of the Ingot Chemistry.
 The test results relate only to the lots tested and are contained in the records of Perryman Company. The Certified Test Report cannot be reproduced except in full, without written approval.

Zachary S. Dragan 06/13/14
 Zachary S. Dragan
 Laboratory Manager

8J38027