



Perryman company
625 Technology Dr., Coal Center, PA 15423
phone: 724-746-9390 fax: 724-746-9392

SOLD TO

CERTIFICATE OF TEST For TITANIUM INGOT

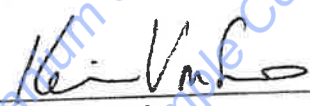
WORK ORDER
054245

HEAT NUMBER
PV09624

CUSTOMER P.O. 71415	Sales Order 090743	QUANTITY 11,708 Lbs	PCS 1									
DESCRIPTION FORM: Billet, Grade: Ti6Al4V, Size: 22.0000												
SPECIFICATIONS Melt Practice and Chemistry Only, AMS 4928W, AMS 6931D, MIL-T-9047G Comp Ti6Al-4V AM 2 Chg Not 1, ASTM B348 GR 5 2021												
Chemistry (WT%) Top												
O	N	C	Fe	Al	V	Si	Cu	Pd	Y	H	B	Ru
.18	.014	.024	.18	6.27	3.89	.014	<.004	<.005	<.005	.0003	<.003	<.005
Chemistry (WT%) Bottom												
O	N	C	Fe	Al	V	Si	Cu	Pd	Y	H	B	Ru
.19	.013	.024	.18	6.16	3.94	.015	<.004	<.005	<.005	.0003	<.003	<.005
Comments												
Melting Process: EBCHR-VAR												
Calculated Beta Transus T/B: 1838F/1836F												
Calculated Beta Transus T/B C: 1003C/1002C												
Residual Elements, each < .10%												
Residual Elements, total < .30%												
Balance Titanium.												
Melted in the United States of America.												
The material is free of radioactive and mercury contamination.												
Oxygen/Nitrogen tested in accordance with ASTM E1409.												
Carbon tested in accordance with ASTM E1941.												
Hydrogen tested in accordance with ASTM E1447.												
B tested in accordance with ASTM E2994.												
Metallics Tested By XRF in accordance with ASTM E539.												
Elements not required by specification are included in Others(each) and Others(Total)												
 ACCREDITED Materials Testing Laboratory												

This material conforms to the chemistry and quality system requirements of the specifications and/or Purchase Order referenced. The results relate only to the lot tested and the results are contained in the records of Perryman Company.

The certificate of test cannot be reproduced except in full without the written approval of the laboratory, and the recording of false, fictitious, or fraudulent statements or entries on this document may be punished as a felony under federal law.


Kevin VonScio
Laboratory Manager

Date Printed: 09/27/2022



SFS-R, 9921 Romandel, Santa Fe Springs, CA 90670 Ph: 562-946-1717

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Phone No. 626.969.8701
Fax No. 626.334.8146

Order Shipped To:
BD&G

Certification No. IS00809537

Certification Date: 11/29/22

Bodycote Sales Order Number: 0111220751288
Purchase Order Number: 71486 WO No. 30637-1
Air Anneal
Quantity: 1 Weight: 5,485
Material: TI-6AL-4V
Part Info: 6" X 31.5" X R/L
Production Order: P01155725-01

The results of the requested processing are as follows:

Serial No. From	Serial No. To	Lot No.	Tech. Rev.	Heat No. PV09624	Other +1TP	Layer
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Certify in accordance with
Anneal per AMS 4928W para 3.4.2,
P.O. Requirements

Description	Furnace	Temperature	Time @ Heat	Cooling Method
Anneal	120	1350°F	12:02 Hrs.	Air Cool

Hot Straighten from previous cycle {ANNEAL}.

During processing, material was not in contact with mercury or any mercury bearing device.

Dylon Kruger

Digitally signed by: Dylon Kruger
DN: cn=Dylon Kruger, email=dylon.kruger@bodycote.com, o=US O=Bodycote
Santa Fe Springs OU=Metallurgist
Date: 2022.11.29 13:50:49 -0800

Authorized Signature:

Dylon Kruger, Quality Manager/Metallurgist

Date: 11/29/22



ND Testing, Inc.

11473 Pacific Ave
Fontana, CA 92337
909-988-4054
www.ndtesting.com
Version 1.0

CERTIFICATE OF CONFORMANCE

Customer

Certificate Date

12/27/2022

NDT WO No.

N22-32417

Customer PO

71489

Customer Job No.

W/O 30637-1

Contact

Part Description	Part No.	Heat/Batch/Serial No.	PO Qty	Received Qty
BAR	6" X 31.5" X R/L	HT# PV09624	1	1

6-4 AS ANNEALED CONDITION

TESTING RESULTS

Insp. Method	Standard	NDT's Procedure	Acceptance Criteria	Qty Acc.	Qty Rej.	Insp. Stamp
Ultrasonic	AMS 2631 REV. G	PP.K5.2631 REV. 2	AMS 2631G CL A1	1	0	

Inspector Remarks

TOTAL ACCEPTABLE FOOTAGE = 140.00". TRIM ENDS AS IDENTIFIED.



Jonathan Ortiz, UT Level III

ALL TESTING WAS PERFORMED IN A MERCURY FREE ENVIRONMENT

Note: The recording of false, fictitious, or fraudulent statements or entries on this document may be punishable as a felony under federal statute. Inspection personnel as a minimum are qualified and certified IAW SNT-TC-1A / NAS 410 Level II. Parts and material have been processed IAW the applicable specifications noted. This report represents our interpretation of the results obtained from the test and is not to be construed as a warranty or guaranty of the condition of the parts or materials tested. Our liability per part is limited to a maximum of 5 times the processing charge per part.

PARTS, MATERIALS, ETC. AS PROCESSED ND TESTING, INC. SHALL BE PRESUMED TO BE ACCEPTED AS SATISFACTORY BY YOU IF WE ARE NOT NOTIFIED OF SHORTAGES OR OTHER DISCREPANCIES WITHIN 2 WORKING DAYS OF RECEIPT OF THE SAME.

NADCAP Approved | MT, PT, RT, UT, CP

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CERTIFIED TEST REPORT

DTC LAB NUMBER 22125693-00
PURCHASE ORDER 71490

DICKSON TESTING COMPANY, INC

December 7, 2022

HEAT NUMBER PV09624
DELIVERY NUMBER WO NO. 30637-1
SPECIFICATIONS AMS 4928W

SIZE 1 PC. 6" X 31.5" X T/P
MATERIAL 6AL-4V T1 (ANNEALED)
DESCRIPTION BODYCOTE# 220751288



CHEMICAL ANALYSIS

SPECIMEN ID		H	
HYDROGEN		18PPM	
REQUIREMENTS	MIN	—	
	MAX	125	
METHOD OF ANALYSIS		FUSION	

TENSILE

TENSILE		SPECIMEN ID	DIR	TEST TEMP		INITIAL GAGE		OFFSET YIELD		ULTIMATE		FINAL GAGE		ELONG'N		RED'N
				ROOM		LENGTH	DIM	OFF	LOAD	STRENGTH	LOAD	STRENGTH	LENGTH	DIM	4D	
				(°F)	(inch)	(inch)	(%)	(lbf)	(ksi)	(lbf)	(ksi)	(inch)	(inch)	(%)	(%)	
RTT			LO	ROOM	1.000	0.250	0.20	6208	126	6672	136	1.17	0.205	17	33	
				ROOM			0.20				130 ksi			10	20	
REQUIREMENTS (MINIMUM, UNLESS OTHERWISE STATED)																

REQUIREMENTS (MINIMUM, UNLESS OTHERWISE STATED)

MICRO-METALLURGY

MICROSTRUCTURE:
UNIFORM ALPHA-BETA PROCESSED STRUCTURE.
EQUIAXED AND ELONGATED PRIMARY ALPHA IN A
TRANSFORMED BETA MATRIX WITH NO CONTINUOUS
NETWORK OF ALPHA AT PRIOR BETA GRAIN BOUNDARIES.
ACCEPTABLE PER PARA. 3.5.1.2.1 OF AMS 4928W.
ETCHANT: KROLLS
MAGNIFICATION: 100X

SURFACE MICRO

ALPHA CASE: 0.0080"
REPORTED FOR INFORMATION PER CUSTOMER REQUEST.
ETCHANT: KROLLS+AMMONIUM BIFLUORIDE
MAGNIFICATION: 100X-500X

Any conformance based on simple acceptance.
This Certified Test Report may only be duplicated or copied in its entirety. Results provided on this Certified Test Report are related only to items tested. The recording of false, fictitious, or fraudulent statements or entries on this document may be punishable as a felony under Federal Statute.

UNLESS NOTED FOR INFORMATION, TESTS REPORTED CONFORM TO SPECIFICATION REQUIREMENTS

[Signature]

ROWENA PASCUA, QUALITY ASSURANCE
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562 862 TEST(8378) • FAX 562 862 3143 • CERTS@DICKSONTESTING.COM