



# Perryman company

213 Vandale Drive Houston, PA 15342 USA

phone: 724-746-9390 fax: 724-746-9392

## Certified Test Report

Customer: **BodySteel and Silver Co., Ltd.**  
**63, Moo 5, Soi wat Bang-Co Yaek Rang-Foam**  
**Kanchanaphisek Road,**  
**Bang Ma-Nang, Bang Yai**  
**Nonthaburi11140**  
**Thailand**

Heat No: **PVD5663**  
Melting Source: **Perryman Company, USA**  
Work Order No: **126556**

Date: **09/26/2018**  
Quantity: **126** **KGS**

Customer Order No: **RM201806004**

Product: **Ti 6Al-4V ELI 4mm h9 (.1562/.1575") Dia. CG Bar X 3,000-3,050mm Random Length**

Specification: **ASTM F136-13**

Condition: **Annealed 1300 F - 2 Hours**

<b>Chemistry</b>	<b>Wt %</b>	<b>ASTM E 1447:</b>	<b>Post processing Hydrogen Determination</b>	<b>H: .0019</b>
<b>Metallographic Examination:</b>	<b>ASTM E407:</b>	<b>Microstructure - Equiax alpha-beta</b>	<b>ASTM E 407:</b>	<b>Surface Contamination - No alpha case 500x</b>
<b>Mechanical Properties</b>	<b>Tensile</b>	<b>.2% Yield</b>	<b>Elongation</b>	<b>Reduction</b>
<b>ASTM E8/EN 2002-001:2005E</b>	<b>Strength</b>	<b>Strength</b>	<b>4D</b>	<b>of Area</b>
<b>Condition</b>	<b>ksi</b>	<b>ksi</b>	<b>%</b>	<b>%</b>
<b>As Shipped</b>	<b>150.5</b>	<b>131.4</b>	<b>21</b>	<b>47</b>

### Eddy current inspection - 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.

The material did not come in contact with Mercury or radioactive contamination at Perryman.

Attached is a copy of the Ingot Chemistry. All testing performed at room temperature unless otherwise noted.

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.

*Earl W. Julius* 9/26/18  
Earl W. Julius  
Certification Technician



# Perryman company

625 Technology Dr., Coal Center, PA 15423 USA

SHIP TO Phone: 724-746-9390 Fax: 724-746-9392

**Perryman Company**  
213 Vandale Drive  
Houston, PA 15342

## CERTIFICATE OF TEST For TITANIUM INGOT

WORK ORDER  
**030213**

HEAT NUMBER  
**PVD5663**

QUANTITY      PCS  
**12450 LBS      1**

### DESCRIPTION

**FORM: Ingot, Grade: Ti6Al/4V Eli, Size: 30**

### SPECIFICATION CAPABILITY

**P-104 Rev 2**

#### Chemistry (WT%) Top

O	N	C	Fe	Al	V	Si	Cu	Pd	Y	H	B	Ru
.11	.006	.013	.18	6.22	3.91	.014	<.004	<.002	<.001	.0003	<.002	<.001

#### Chemistry (WT%) Bottom

O	N	C	Fe	Al	V	Si	Cu	Pd	Y	H	B	Ru
.12	.006	.013	.17	6.22	3.88	.013	<.004	<.002	<.001	.0003	<.002	<.001

#### Comments

Melting Process:

EBCHR-VAR

Calculated Beta Transus T/B:

1801F/1805F

Calculated Beta Transus T/B C:

983C/985C

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.

Y, Pd, Ru tested in accordance with ASTM E2371.

B tested in accordance with ASTM E2994.

Metallics Tested By Spark-AES in accordance with ASTM E2994.

**Elements not required by specification are included in Others(each) and Others(Total)**



Materials Testing Laboratory

This material conforms to the chemistry and quality system requirements of the specifications 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.

**Michael DeAngelis**  
Senior Laboratory Technician

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