

St. Louis Mill Sales
 109 Interstate Drive
 WENTZVILLE MO 63385
 USA
 Tel:800-753-1650 Fax:636-887-9098
 Shipping Plant: St. Louis Service Center

Attachment to Product Certification	
Customer P.O. Number/Date	15-7616 Rel 1/Mar 23, 2015
TIMET Sales Order Number/Date	437223/Mar 24, 2015
TIMET Packing List Number/Scheduled Ship Date	80662082/Mar 27, 2015

Sold-to Address
 Titanium Metal Supply
 12215 Kirkham Road, Suite 300
 POWAY CA 92064
 USA

Ship-to Address
 Titanium Metal Supply
 12215 Kirkham Road, Suite 300
 POWAY CA 92064
 USA

TIMET Item #	Material #	Material Description	Quantity	Weight
Customer Item #	Customer Material #			
000010	125530	TIMETAL® 65A Titanium Aero Sheet		
	Specifications	: AMS 4900 * P		
		: AMS-T-9046 * A CP-2		
		: MIL-T-9046J AM-2 CP-2		
	Batch Number	: HN2152-Y61	8,000PC	25.000LB
	Batch Dimensions	: 0.020" X 36.000" X 27.000"		
	Batch Number of Pieces	: 8,000		
	Country of Origin	: USA		
	Heat Number	: HN2152		
	Test Number	: W15522		
	Batch Number	: GN3149-Y31	6,000PC	19.000LB
	Batch Dimensions	: 0.020" X 36.000" X 27.000"		
	Batch Number of Pieces	: 6,000		
	Country of Origin	: USA		
	Heat Number	: GN3149		
	Test Number	: W14928		
	Batch Number	: HN2660-Y18	76,000PC	241.000LB
	Batch Dimensions	: 0.020" X 36.000" X 27.000"		
	Batch Number of Pieces	: 76,000		
	Country of Origin	: USA		
	Heat Number	: HN2660		
	Test Number	: W15944		
	B-Additional customer req			
	DFARS 252.225-7008			
000020	300203	MISC SALES - PACKING BOXES/LUMBER		
		1,000EA	0.000LB	

**Attachment to
Product Certification**

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Shipping Plant, St. Louis Service Center

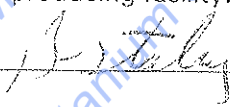
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POWAY CA 92064
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TIMET Item #	Material #	Material Description	Quantity	Weight
Customer Item #	Customer Material #			

Results are from TIMET Quality Control Records on file. The undersigned has verified that the information on the attached mill product certification meets the requirements of the above referenced order. This Attachment to Product Certification is specific to your referenced order, is an integral part of and amends the physical and chemical test reports attached. All specification(s) and revision(s) that differ from the attached have been approved for inclusion by the producing facility.

Authorized TIMET Signature



Date



Titanium Metals Corporation

Approved Certificate

100 Titanium Way

Toronto, OH, 43964

Telephone (740) 537-5694, Fax (740) 537-5653

Page 1 of 5

CERT ID

HN2660-M1

07-JAN-2015 16:45:31 GMT

PURCHASE ORDER

20113985

SOLD TO CUSTOMER

TIMET Service Center St. Louis

109 Interstate Drive, Wentzville, MO 63385

HEAT NUMBER

HN2660

GRADE

TIMETAL@65A

SHIP TO ADDRESS

TIMET Service Center St. Louis

109 Interstate Drive, Wentzville, MO 63385

TEST NUMBER

W15944

PRODUCT DESCRIPTION

0.020" SQ Coil

DELIVERY CONDITION

Annealed & Pickled

Specifications

This material complies with the following specifications:

AMS 4900 N

AMS-T-9046 A CP-2

ASTM B 265 -13ae1 Grade 3

ASTM F 67 -13 Grade 3

Melt Method

EB

Melt/Process Location

TIMET - Morgantown, PA, USA

TIMET - Toronto, OH, USA

Compliance Statements

1. Surface free from alpha case and product conforms to the other technical requirements of the referenced specification(s).
2. Bend testing performed meets or exceeds the requirements of the ordered specifications.
3. During the manufacturing process, this material has not come in contact with mercury or radioactive luminescent materials, as such, it is certified to be free of mercury and radioactivity.
4. No weld repair has been performed on this material.
5. Material complies with DFARS 252.225-7008.
6. Material certificate in compliance with EN 10204:2004 Type 3.1.
7. The recording of false, fictitious, or fraudulent statements or entries on this document may be punishable as a felony under Federal Statutes including federal law, Title 18, Chapter 47.
8. TIMET-Toronto has a Quality Management System that is in compliance with ISO 9001:2008, and AS 9100:2009 Revision C. (AS9100 certificate is available at www.timet.com)

This test report shall not be reproduced except in full, without the written approval of TIMET.

The intentional recording of false, fictitious, or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

First in Titanium Worldwide



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109 Interstate Drive, Wentzville, MO 63385

**Ingot Chemical Analysis
(Weight percent)**

Unless otherwise noted, Ingot Chemical Analysis performed at Morgantown Process Lab, 900 Hemlock Road, Morgantown, PA, 19543, USA

	Fe	C	O	N
Sample ID				
TOP	0.13	0.008	0.22	0.012
BOT	0.12	0.009	0.19	0.011

**Product Analysis
(Weight percent)**

Unless otherwise noted, Product Analysis performed at Toronto Laboratory, 100 Titanium Way, Toronto, OH, 43964, USA

	H
Sample ID	
F	14
B	11

Chemistry Statements

- Hydrogen values reported in PPM. Hydrogen determined by inert gas fusion per ASTM E1447. Carbon determined by combustion per ASTM E1941. Oxygen and Nitrogen determined by inert gas fusion per ASTM E1409. Henderson Melt: Metallics determined by Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES) per ASTM E2371. Morgantown Melt: Copper and Boron by atomic spectrometry (ingot only) and all other elements by x-ray fluorescence spectrometry.
- Residual elements 0.05% maximum each, 0.30% maximum total.
- Balance titanium.

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CERT ID

HN2660-M1

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PURCHASE ORDER

20113985

SOLD TO CUSTOMER

TIMET Service Center St. Louis
109 Interstate Drive, Wentzville, MO 63385

Mechanical Properties

Unless otherwise noted, testing performed at Toronto Laboratory, 100 Titanium Way, Toronto, OH, 43964, USA

Bend Test, L-Direction, R/T, (ASTM E 290)

BF 2.0

Test Condition: [MILL] CVA 3 to 14 Minutes @ 1400°F + leveling

20X105

Sample ID	P/F
F	PASS
B	PASS

Bend Test, L-Direction, R/T, (ASTM E 290)

BF 2.0

Test Condition: [MILL] CVA 3 to 14 Minutes @ 1400°F + leveling

10X180

Sample ID	P/F
F	PASS
B	PASS

Bend Test, T-Direction, R/T, (ASTM E 290)

BF 2.0

Test Condition: [MILL] CVA 3 to 14 Minutes @ 1400°F + leveling

20X105

Sample ID	P/F
F	PASS
B	PASS

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100 Titanium Way
Toronto, OH, 43964

Telephone (740) 537-5694, Fax (740) 537-5653

Page 4 of 5

CERT ID
HN2660-M1
07-JAN-2015 16:45:31 GMT

PURCHASE ORDER
20113985

SOLD TO CUSTOMER
TIMET Service Center St. Louis
109 Interstate Drive, Wentzville, MO 63385

Bend Test, T-Direction, R/T, (ASTM E 290)

BF 2.0

Test Condition: [MILL] CVA 3 to 14 Minutes @ 1400°F + leveling

10X180

Sample ID	P/F
F	PASS
B	PASS

RTT - Longitudinal (ASTM E 8)

Test Condition: [MILL] CVA 3 to 14 Minutes @ 1400°F + leveling

0.2YS U.T.S. 2inEL

Sample ID	ksi	ksi	%
F	66	87	23
B	59	84	23

RTT - Transverse (ASTM E 8)

Test Condition: [MILL] CVA 3 to 14 Minutes @ 1400°F + leveling

0.2YS U.T.S. 2inEL

Sample ID	ksi	ksi	%
F	78	93	22
B	74	92	23

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PURCHASE ORDER
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109 Interstate Drive, Wentzville, MO 63385

Metallurgical Properties

Unless otherwise noted, testing performed at Toronto Laboratory, 100 Titanium Way, Toronto, OH, 43964, USA

Grain Size (ASTM E 112)

Test Condition: [MILL] CVA 3 to 14 Minutes @ 1400°F + leveling

GRAIN SIZE

Sample ID	Grn
F	7.0
B	7.0

Micro Exam - Longitudinal
AMS-T-9046A, KROLLS, 200X

Test Condition: [MILL] CVA 3 to 14 Minutes @ 1400°F + leveling

OVERALL

Sample ID	P/F
F	PASS
B	PASS

Results are from TIMET Quality Control Records on file
Sales Order # 420596 Item # 10
v.1

Digitally signed
by Pete Colantoni
Date: 2015.01.07
11:49:30 -0500
Pete Colantoni - Certification Specialist

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