



521843-03 - 30in

	<b>Certificate of Test</b>		 <small>Stephen Wolff - Director, Corporate Quality Assurance</small>
	<b>Mill Information</b>		<b>Customer Information</b>
500 Green Street Washington, PA 15301	Cert Number 0130794-01 Sales Order 50-044-368 Cert Date Jun-17-2014	Name PO PO Date	

Sold to:	Ship to:
----------	----------

**Material Information**

"RA 625" NICKEL ALLOY PMP HOT ROLLED PLATE ANNEALED PICKLED COMMERCIAL CUT EDGE	
AMS 5599G ASTM-B-443-00 R2009 - GRADE 1 S-1000 DATED 12/04/2013 WNR 2.4856 NACE MR0103:2007 ASQR-01 REV 8	ASME-SB-443 ED 2013 GRADE 1 NACE MR0175/ISO 15156-3:10/2009 S-400 DTD 02/07/2014 RR9000:SABRE UNS N06625

**Piece Information**

	Gauge	Width	Length					Total Wt
Pcs	(in)	(in)	(in)	Heat #	Piece ID	Section Id	Lot #	(lbs)
Item: 001	Cust-Id: 0009853		Govt-Contract-#:		Govt-DO-Rating:			
	Cust-Job:		ScheduleB:					
1	3.0000	58.0000	170.0000	521843-03	CC56872	---	436041	9293

**Chemistry Testing**

Element (wt %)	Requirements		Final Heat Analysis	
	Min	Max	521843-03	Loc
C	---	.10	.07	TC
MN	---	.50	.36	BN
P	---	.015	.008	BN
S	---	.015	< .001	TC
SI	---	.50	.23	BN
CR	20.00	23.00	22.07	BN
NI	58.00	---	61.01	BN
AL	---	.40	.18	BN
MO	8.00	10.00	8.12	BN
CU	---	.50	.10	BN
CB	3.15	4.15	3.39	BN
TA	---	---	.010	BN
TI	---	.40	.19	BN

HEAT # 521843-03



TRACER # 0424929US



# Certificate of Test

*Stephen Wolff*  
 Stephen Wolff - Director, Corporate Quality Assurance

500 Green Street Washington, PA 15301	<b>Mill Information</b>		<b>Customer Information</b>	
	Cert Number	0130794-01	Name	
	Sales Order	50-044-368	PO	
	Cert Date	Jun-17-2014	PO Date	

## Chemistry Testing

Element (wt %)	Requirements		Final Heat Analysis	
	Min	Max	521843-03	Loc
CO	---	1.00	.05	BN
FE	---	5.00	4.24	BN
CBT	3.15	4.15	3.40	XX

Allegheny Ludlum performs chemical analysis by the following techniques:  
 C, S by combustion/infrared; N, O, H by inert fusion/thermal conductivity;  
 Mn, P, Si, Cr, Ni, Mo, Cu, Cb, Co, V, by WDXRF; Pb, Bi, Ag by GFAA;  
 B by OES; Al and Ti (>=0.10%) by WDXRF, otherwise by OES.

52184303 - Material was produced by EF melting, AOD refining, and ESR.

CBT = Cb + Ta

## Mechanical Testing

		LOT 436041	
Condition:		ANNEALED	
Direction:		TRANSVERSE	
Temperature:		ROOM TEMP	
Spec:			
Test Limit	Units	Result	Loc
YIELD 0.2%	psi	72000.	TC
TENSILE	psi	131000.	TC
ELONGATION	%	44.	TC
RED OF AREA	%	41.	TC
HARDNESS	---	202. HBW	TC

When hardness is measured using the Brinell scale, the indentation measuring device is Type A.

## Mechanical Property Requirements

Condition:		ANNEALED	
Direction:		TRANSVERSE	
Temperature:		ROOM TEMP	
Spec:			
Test Limit	Units	Min	Max
YIELD 0.2%	psi	60000.	---



**ATI Allegheny Ludlum**

# Certificate of Test

Stephen Wolff - Director, Corporate Quality Assurance

500 Green Street Washington, PA 15301	<b>Mill Information</b>		<b>Customer Information</b>	
	Cert Number	0130794-01	Name	
	Sales Order	50-044-368	PO	
	Cert Date	Jun-17-2014	PO Date	

## Mechanical Property Requirements

Condition:	ANNEALED		
Direction:	TRANSVERSE		
Temperature:	ROOM TEMP		
Spec:			
<b>Test Limit</b>	<b>Units</b>	<b>Min</b>	<b>Max</b>
TENSILE	psi	120000.	---
ELONGATION	%	30.	---
RED OF AREA	%	---	---
HARDNESS	---	---	287. HBW

## Metallography - General

Test ID	Result Name	Condition	Test Result	Loc	Requirements
LOT 436041	GRAIN SIZE	ANNEALED	8.	TC	3. min

Metallographic magnification: 100X; Etchant used HCL/CHROMIC ACID

## Certification Statements

Allegheny Ludlum does not use mercury in the testing or production of its products.

Material is of USA melt and manufacture.

No welds/weld repairs performed.

Knowingly and willfully recording any false, fictitious or fraudulent statement or entry on this document may be punished as a felony under Federal Statutes, including Federal Law, Title 18, Chapter 47.

Allegheny Ludlum works to the Rolls Royce SABRe Quality Management System requirements.

Material tested at Allegheny Ludlum GEAE S400 approved facilities (T1225): Natrona Heights Technical Center and Brackenridge, PA. and New Bedford, MA.

ATI Allegheny Ludlum holds several Quality and Laboratory certifications that include ISO-9001, AS9100, AD 2000-Merkblatt W0, EU Pressure Equipment Directive 97/23/EC, Nadcap, ISO/IEC 17025, GEAE S400, GEAE S-1000. Refer to [www.ATIMetals.com](http://www.ATIMetals.com) to access the current ATI Flat Rolled Products certifications.

Material was annealed at 1600F (871C) minimum, held within +/- 25F (+/- 14C) of the setpoint for a time commensurate with thickness, and cooled at a rate equivalent to air cool or faster.

Allegheny Ludlum Corporation has received Nadcap approval for chemical, mechanical, metallographic, hardness, corrosion testing, mechanical test specimen preparation, and heat treatment of specimens. Verification of accreditation is available online.

DIN EN 10204:2005 3.1 Certificate



**ATI Allegheny Ludlum**

# Certificate of Test

Stephen Wolff - Director, Corporate Quality Assurance

500 Green Street Washington, PA 15301	<b>Mill Information</b>		<b>Customer Information</b>	
	Cert Number	0130794-01	Name	
	Sales Order	50-044-368	PO #	
	Cert Date	Jun-17-2014	PO Date	Apr-21-2014

## General Statements

**TESTING WAS PERFORMED AT THE FOLLOWING LOCATIONS**

- BN = ATI-ALLEGHENY LUDLUM; 100 River Road; Brackenridge, PA 15014
- TC = ATI-ALLEGHENY LUDLUM; 1300 Pacific Avenue; Natrona Heights, PA 15065
- XX = CALCULATED

**WARNING:** Processing that makes fumes, dust, or solutions may cause lung disease. Please see MSDS for further information which has been supplied to your Purchasing Department. For an additional copy, please refer to our web site at [www.atimetals.com/businesses/business-units/ludlum/Pages/msds.aspx](http://www.atimetals.com/businesses/business-units/ludlum/Pages/msds.aspx).

For access to online Certifications of Test, please register at [www.alcextra.com](http://www.alcextra.com).

The above is a true copy of the data on file. The material and test results conform to the sales contract and specification(s) as set forth in ATI Allegheny Ludlum's order acknowledgement. This certificate of Test may not be reproduced except in full without the written authorization of the company.

ATI Allegheny Ludlum's website contains a listing of material produced, general technical and contact information, and current quality and company accreditations including but not limited to ISO-9001, AS-9100, Nadcap, and ISO/IEC 17025. Please visit us at [www.atimetals.com](http://www.atimetals.com)