

**CERTIFICATE OF TESTS**

<b>SOLD TO:</b> HELICAL WIRE INC 26 CASH DRIVE  CARSON CITY NV 89706	<b>SHIPPED TO:</b> HELICAL WIRE INC 26 CASH DRIVE  CARSON CITY NV 89706
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<b>MATERIAL DESCRIPTION</b> S304 STAINLESS STEEL .0253 X .0316 SHAPE TEMPER 200-250 KSI. AS7245 PITCH 32 NASM8846 NASM21209	<b>PURCHASE ORDER NO:</b> 60092	<b>MANUFACTURING NO:</b> W117554
	<b>AMETEK ORDER NO:</b> 10055939	<b>ITEM NO:</b> HELS30400-0253SS01
	<b>SHIPPED:</b>  DEC 20 2013	<b>HEAT NO:</b> H8T8
	<b>QTY CERTIFIED:</b> 3,298 lbs.	

**CHEMICAL ANALYSIS (Wt %)**

%Al	%As	%B	%Be	%Bi	%C	%Ca	%Cd	%Co	%Cr
					0.0479			0.2165	18.2655
%Cu	%Fe	%In	%K	%Mg	%Mn	%Mo	%N2	%Na	%Nb
0.4035	BALANCE				1.6745	0.3170	0.0324		
%Ni	%O2	%P	%Pb	%S	%Sb	%Se	%Si	%SiC	%Sn
9.0950		0.0320		0.0010			0.4025		
%Ta	%Te	%Ti	%V	%W	%Zn	%Zr	%Nb + Ta	%Ni + Co	%Zr + Ti
%Others									

**PHYSICAL PROPERTIES AS PROCESSED**

**Hardness**  
**Tensile Strength** 221.5 KSI  
**Yield Strength**  
 (at .2% offset)  
**Elongation**  
**Bend Test** 180° 2T  
**Grain Size**

NO Pb,Cd,Be,OR As WERE USED IN THE PROCESSING OF THIS MATERIAL  
 MATERIAL IS FREE OF MERCURY  
 SURFACE FINISH Ra - 5-8

**Country of Origin Vendor of Origin DFARS Compliant? RoHS Compliant?**  
 USA CENTRAL WIRE (NAS) Yes Yes

*Eldrick Arsenault* 12/19/13  
 Eldrick Arsenault - Quality Control Tech. Date

• ISO 9001:2008 CERTIFIED •

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6870 HIGHWAY 42 EAST

# METALLURGICAL TEST REPORT

NORTH AMERICAN STAINLESS  
6870 HIGHWAY 42 EAST  
GHENT, KY 41045

Certificate: 849692 5

Mail To:  
CENTRAL WIRE  
1 NORTH STREET  
PERTH, ON K7H2S2

Ship To:  
CENTRAL WIRE  
1 NORTH STREET  
PERTH, ON K7H2S2

Date: 7/01/2013 Page: 1

Steel: 304

Finish: HRAP

Your Order: 2503318

NAS Order: DS 0003455 01

Corrosion: ASTM A262 Prac E OK

## PRODUCT DESCRIPTION:

Wire Rod HRAP  
UNS S30400, EN 10204 3.1  
ASTM A555/05, ASTM A580/08 (CHEM ONLY)

## REMARKS:

COMPLIES W/REQUIREMENTS OF DFMAR 252.225-7014A-1 EU DIRECTIVE  
2011/65/EU. ROHS. EAF+AOB+CC. NO WELD REPAIR. MELTED AND MFG  
IN USA FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

Product Id	Skid #	Diameter	Size	Weight	Length	Mark	Pieces	Commodity Code
WC7665 3		.2165		2.666			5	1

### CHEMICAL ANALYSIS

CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan) Chemical Analysis per ASTM A751/08

HEAT	CM	C %	CO %	CR %	CU %	MN %	MO %	N %	NI %	P %
H8T8	US	.0479	.2165	18.2655	.4035	1.6745	.3170	.0324	9.0950	.0320
	S %	SI %								
		.0010	.4025							

### MECHANICAL PROPERTIES

Product Id	1 d	HB	.2YS	UTS	RA	ELng
WC7665 3	OK	No.	KSI	KSI	%	% 2w
	RL	103.00	29.70	86.88	81.11	62.80

OCT 4 - 2013

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS.

Technical  
Dept. Mgr.

ERIC HESS

7/02/2013



PERTH, ON  
 ERIN, ON  
 DUMAS, AR  
 LANCASTER, SC

613-267-3752 FAX 613-267-5617  
 519-833-9632 FAX 519-833-2213  
 870-382-2980 FAX 870-382-6988  
 803-283-3353 FAX 803-283-6303



FOND DU LAC, WI  
 UNION, IL  
 PERRIS, CA

920-926-0609 FAX 920-926-0652  
 815-923-2131 FAX 815-923-2126  
 951-657-2105 FAX 951-943-6061

THE LEADING MANUFACTURER OF STAINLESS STEEL AND NICKEL ALLOY WIRE PRODUCTS  
 EXECUTIVE OFFICES: PERTH, ON CANADA - EMAIL: [sales@centralwire.com](mailto:sales@centralwire.com)

CENTRAL WIRE INDUSTRIES LTD.  
 1 NORTH STREET, PERTH, ONTARIO, CANADA K7H2S2  
 TEL: 613-267-3752 1-888-267-3761  
 FAX: 613-267-3929/2951 SALES FAX: 613-267-5617

## CERTIFICATE OF CONFORMANCE

SOLD TO  
 AMETEK SPECIALTY METALS  
 P.O. BOX 5807  
 21 TOELLES ROAD  
 WALLINGFORD CT 06492  
 USA

SHIP TO  
 AMETEK SPECIALTY METALS  
 21 TOELLES ROAD  
 WALLINGFORD, CT 06492  
 USA

CUSTOMER'S PO NO.	TYPE OF CERT	CUSTOMER	ORDER NO.	WORK ORDER	DATE SHIPPED
R11176	Customer	102180	2027316 2	5051371	9/27/13

**SPECIFICATIONS:**  
 0.029" 304 Stainless Steel per specification S30400-0290  
 Tensile: 190-210 ksi

### ITEM DESCRIPTION

DESCRIPTION	SPEC. CLASS	HEAT
Fine wire 304 SPECIFIED Bright .0290 500LB PLReel Clean	Melt mill NAS Country of origin USA	H8T8
	QTY SHIP 5381	025

### CHEMICAL ANALYSIS

C	SI	MN	P	S	CR	NI
.0479	.4025	1.6745	.0320	.0010	18.2655	9.0950
MO	CO	CU	N			
.3170	.2165	.4035	.0324			

### MECHANICAL PROPERTIES

**AS SHIPPED PROPERTIES:**

DIAMETER	TENSILE 196.100 KSI MIN	TENSILE 207.400 KSI MAX				
.02899"						

**AFTER HEAT TREAT PROPERTIES:**

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Material is DFARS compliant

OCT 4 - 2013

The material as shipped is free from mercury contamination. I certify the chemical analysis and physical and mechanical test results reported above are correct as contained in the records of the company.

Very truly yours,

*Thomas*

AUTHORIZED SIGNATURE