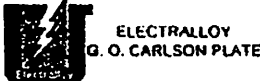



49232-2B.



<b>MATERIAL CERTIFICATION REPORT and CERTIFICATION OF QUALITY CONFORMANCE</b>	Customer Address	Shipping Address	Print Date	Ship Note
  175 Main Street Oil City PA 16301 (800) 458-7273	COPPER & BRASS SALES	COPPER & BRASS SALES	14-Jun-2010 13:49	106157
	ACCOUNTS PAYABLE	10648 WEST LITTLE YORK	Customer Order	Sales Order
	P O BOX 5116	SUITE 104	5400058126	106267
	SOUTHFIELD, MI 48086-311	HOUSTON, TX 77041	Certification ID: 108779 Revision: <span style="border: 1px solid black; padding: 2px;"> </span>	

Grade: 316L.  
 Specification: Type 316/316L UNS S31600/S31603 - ASTM A262 practice E, ASTM A182/A182M-07, AMS 5 648K, AMS 5653F ASTM A193/A193M-07,(316), ASTM A320/A320M-07 (316), ASTM A479/A479M-06a ASTM A314-97 (Reapproved 2002), ASTM A471-01, ASTM A 276-06, NACE Std-MR0175-99, QQ-S-763F, ASTM A336/A336M-07, ASME SA-182/SA-182M, ASME SA-336/SA-336 M, ASME SA - 320/SA-320M02, (316)ASME SA-479/SA-479M, ASTM A4 84/A484M-06b, SA-193M-94 and any additional specifications which may be listed below.  
 Condition: HOT ROLLED / HOT FORGED, ANNEALED  
 Finish: ROUGH TURNED

Sales Order	Quantity	Heat	Lot ID	Weight	Size	Customer Mark
106267-4	1	49232	49232-2B	2,550 T.B Length: 136.5000 in; Diam: 9.0940 in		
106267-4	1	49232	49232-2C	3,100 L.B Length: 163.7500 in; Diam: 9.0980 in		

Lot	Test	Result	Low Limit	High Limit
49232-2B	Grain Size TT (GRS)		3.5	0
ASTM PRACTICES - ASTM A262				
49232-2B	Prac E LT		PASS	
<b>SPECIFICATION RESULTS</b>				
<b>FINAL LADLE CHEMISTRY FOR ATTEMPT</b>				
49232	C	0.019	0.000	0.030
49232	Mn	1.76	1.25	2.00
49232	P	0.025	0.000	0.040
49232	S	0.022	0.020	0.025
49232	Si	0.46	0.00	1.00
49232	Cr	16.30	16.00	18.00
49232	Ni	10.16	10.00	14.00
49232	Mo	2.09	2.00	3.00
49232	Cu	0.29	0.00	0.75
49232	N	0.078	0.000	0.100
49232	Co	0.12	0.00	0.20
<b>PASS / FAIL TESTS</b>				
49232-2B	Carb Net		PASS	
49232-2B	Macro Etch		PASS	
<b>REDUCTION AREA</b>				
49232-2B	LT (%)	77	50	999
<b>TENSILE</b>				
49232-2B	LT (PSI)	86500	75000	400000
<b>.2% YIELD</b>				
49232-2B	LT (PSI)	40000	30000	400000
<b>ELONGATION 4D</b>				
49232-2B	LT (%)	56	45	999
<b>BRINELL</b>				
49232-2B	(BHN)	143	140	200
<b>GRAIN SIZE</b>				

9/20/10

MATERIAL CERTIFICATION REPORT and CERTIFICATION OF QUALITY CONFORMANCE		Customer Address	Shipping Address	Print Date	Ship Note
 ELECTRALLOY G. O. CARLSON PLATE	 175 Main Street OH City PA 16301 1 (800) 458-7273	COPPER & BRASS SALES	COPPER & BRASS SALES	14-Jun-2010 13:49	106157
		ACCOUNTS PAYABLE	10648 WEST LITTLE YORK	Customer Order	Sales Order
		P. O. BOX 5116	SUITE 104	5400058126	106267
		SOUTHFIELD, MI 48086-5111	HOUSTON, TX 77041	Certification ID: 108779	Revision: <input type="text"/>

ASTM B1019-03, ASTM E572-02a, and ASTM E1086-94 are the methods used to determine the chemical analysis for Fe base (High Alloy), Ni base and Cu base alloys

At time of shipment, items and/or material produced under this order have not come in contact with Mercury or its compounds

Material Certification conforms to Certificate 3.1 as in EN 10204.

Material represented was melted and manufactured in the USA

Material represented was not weld repaired.

The reported results represent the actual attributes of the material furnished and indicate full compliance with all applicable specification and contract requirements.

Material represented was solution annealed at 1925 degrees F +/-25 degrees F, held 30 minutes per inch of thickness and water quenched.

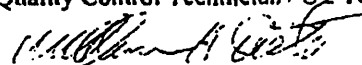
Material represented was ultrasonically inspected in accordance with ASTM A388 and found acceptable using a 1/8" flat bottom hole as the acceptance criteria.

Material represented was produced in accordance with the Electralloy Quality Control Program dated 09/23/2009, which meets the requirements of ISO9001(2000), MIL-I-45208A and ASME Code Section 3, Subsection NCA 3800

The mechanical tests have been performed at Modern Industries, Materials Research Division located at 613 West 11th Street Erie, PA 16512-0399

Stainless Steel Bar, electric arc furnace melted, A.O.D. refined.

Meets EU Electrical "RoHS". Contains NO "WEEE" relevant substances. Complies with DFARS-225, i-Buy American Act-Supplies. HWRR - Minimum Hot Working Reduction Ratio. Electralloy only accepts residual and trace elements to the limits invoked by the specification and or customer. This document shall not be reproduced, except in full, without the written approval of Electralloy / GOC Plate.

Name: William A. Deets  
 Title: Quality Control Technician / UT Technician  
 By: 

The recording of false, fictitious, or fraudulent statements or entries on this document may be punishable as a felony under Federal Statute.  
 The above are true and correct results of tests on samples of the material. Results conform to the specification(s) listed above and are on record.

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