



49232-2C



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

Grade: 316L
 Specification: Type 316/316L (UNS S31600/S31603) - ASTM A262 practice E. ASTM A182/A182M-07, AMS 5648K, AMS 5653F ASTM A193/A193M-07, (316), ASTM A320/A320M-07 (316), ASTM A479/A479M-06a AS FM A314-97 (Reapproved 2002), ASTM A471-01, ASTM A 276-06, NACE SR0175-99, 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 A484/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 L.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
SPECIFICATION RESULTS				
FINAL LADLE CHEMISTRY FOR AIRMELT				
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
PASS / FAIL TESTS				
49232-2B	Carb Net	PASS		
49232-2B	Macro Etch	PASS		
REDUCTION AREA				
49232-2B	LT (S)	77	50	999
TENSILE				
49232-2B	LT (PSI)	86500	75000	100000
.2% YIELD				
49232-2B	LT (PSI)	40000	30000	60000
ELONGATION 4D				
49232-2B	LT (I)	56	45	999
BRINELL				
49232-2B	(BHN)	143	140	200
GRAIN SIZE				
49232-2B	Grain Size TT (GRS)	3.5	0	999
ASTM PRACTICES - ASTM A262				
49232-2B	Prac E LT	PASS		

OK
10/14/10

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) 454-7273	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--511	HOUSTON, TX 77041	Certification ID: 108779	Revision: <input type="text"/>

ASTM E1019-03, 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-225.1-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.