

C065141

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51707

**MATERIAL CERTIFICATION REPORT and  
CERTIFICATION OF QUALITY CONFORMANCE**



ELECTRALLOY  
G. O. CARLSON PLATE



175 Main Street  
Oil City PA 16301  
1 (800) 458-7273

Print Date Time	Ship Note
21-Jun-2012 10:31	118460
Certification ID	
124365-1	
Customer Order	Sales Order
P02111	113705

Grade: 316L  
 Specification: Type 316/316L(UNS S31600/S31603) - ASTM A182/A182M-11a (F316,F316L) AMS 5648L, AMS 5653G ASTM A193/A193M-11a,(316),ASTM A479/A479M-11, ASTM A276-10, **NACE STD-MR0175/ISO 15156-3** AMS QQ-S-763B, ASME SA-182/SA-182M 2010 Edition, SA-479/SA-479M 2010 Edition, ASTM A484/A484M-11, ASME SA-193/SA-193M 2010 Edition, ASTM A262 practice E (A allowed),NACE MR0103-2005, AMS-S-7720A (316) and Energy Steel SS1 Rev. 5.1,and any additional specifications which may be listed below. Material certification satisfies EN 10204 3.1.  
 Condition: HOT ROLLED / HOT FORGED, ANNEALED  
 Finish: ROUGH TURNED



Sales Order	Quantity	Heat	Lot ID	Weight	Size	Customer Mark
113705-2	1	51707	51707-1A	14,990 LB	Diam: 18.0300 in; Length: 202.0000 in	

Lot	Test	Result	Low Limit	High Limit	
<b>SPECIFICATION RESULTS</b>					<b>BRINELL</b>
<b>FINAL LADLE CHEMISTRY FOR AIRMELT</b>					51707-1A (BHN) 196 150 223
51707	C	0.016	0.000	0.030	<b>GRAIN SIZE</b>
51707	Mn	1.80	1.25	2.00	51707-1A Grain Size TT (GRS) 3.5 0 9999
51707	P	0.023	0.000	0.040	<b>ASTM PRACTICES - ASTM A262</b>
51707	S	0.022	0.020	0.030	51707-1A Prac E LT PASS
51707	Si	0.56	0.00	1.00	
51707	Cr	16.21	16.00	18.00	
51707	Ni	10.21	10.00	14.00	
51707	Mo	2.11	2.00	3.00	
51707	Cu	0.36	0.00	0.50	
51707	N	0.084	0.000	0.100	
51707	Co	0.15	0.00	0.20	
<b>PASS / FAIL TESTS</b>					
51707-1A	Carb Net	PASS			
51707-1A	Macro Etch	PASS			
<b>REDUCTION AREA</b>					
51707-1A	LT (%)	77.3	50	999	
<b>TENSILE</b>					
51707-1A	LT (PSI)	88700	75000	400000	
<b>.2% YIELD</b>					
51707-1A	LT (PSI)	48000	30000	400000	
<b>ELONGATION 4D</b>					
51707-1A	LT (%)	58.05	45	999	

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

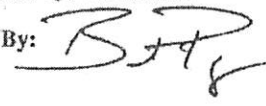
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MATERIAL CERTIFICATION REPORT and CERTIFICATION OF QUALITY CONFORMANCE		Customer Address	Shipping Address	Print Date Time	Ship Note
 <b>ELECTRALLOY</b> G. O. CARLSON PLATE	 <b>C</b> Products	175 Main Street		21-Jun-2012 10:31	118460
		Oil City PA 16301		<b>Certification ID</b>	
		1 (800) 458-7273		124365-1	
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**Quality Statements:**  
 ASTM E1019-08, ASTM E572-02a (2006)e2 and ASTM E1086-08 are methods used to determine the chemical analysis for Fe Base (High Alloy) alloys utilizing XRF, OES and Combustion and Fusion Methods.  
 The mechanical tests have been performed at Modern Industries, Materials Research Division located at 613 West 11th Street Erie, PA 16512-0399  
 At time of shipment, items and/or material produced under this order have not come in contact with Mercury or its compounds.  
 Compliant with DFARS 252.225-7014 Alt. 1. Preference for Domestic Specialty Metals  
 HWRR - 2.9:1 from a 34"x34" square ingot.  
 Material Certification conforms to Certificate 3.1 as in EN 10204:2010  
 Material represented was melted and manufactured in the USA  
 Material represented was not weld repaired.  
 Material represented was produced in accordance with the Electralloy Quality Control Program dated 06/07/2011, which meets the requirements of ISO9001(2008), MIL-I-45208A including Amendment 1 and ASME Code Section 3, Subsection NCA 3800.  
 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 was not exposed to Radium or other radioactive materials while at our facility.  
 Melting and Refining Source - Electralloy.  
 Method of manufacture - Electric Arc Furnace, AOD refined.  
 All items are in full compliance with all purchase order and specification requirements.

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. We hereby affirm that the reported results on this certification are correct and accurate. All tests and results and operations performed by (Electralloy/G.O. Carlson Plate) or its subcontractors are in compliance with the applicable material/customer specification(s).  
 The parties agree that when title transfers for the products subject to this agreement, or when the products are delivered to purchaser, whichever occurs first, responsibility for the submission of any required export or re-export licenses or related export control approvals for these products also transfers to purchaser. Any export license requirement under any applicable export control statute, regulation, or practice, from any U.S. government agency, including but not limited to the Department of Commerce's Bureau of Industry and Security, the Department of Treasury, Office of Foreign Assets Control, the U.S. Department of State, Directorate of Defense Trade Controls, and the Nuclear Regulatory Commission, are solely the responsibility of the purchaser. Further, purchaser warrants that it will comply with all applicable export and re-export controls related to these products.

Name: Bart Plyler  
 Title: QC Technician  
 By: 

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