



C004314

MATERIAL CERTIFICATION REPORT and CERTIFICATION OF QUALITY CONFORMANCE		Customer Address	Shipping Address	Print Date	Ship Note
 ELECTRALLOY G. O. CARLSON PLATE	 175 Main Street Oil City PA 16301 1 (800) 458-7273	ASA ALLOYS	ASA ALLOYS	03-Mar-2010 8:19	104691
		20 CHALLENGER CRESCENT SHERWOOD PARK AB T8H2R1 CANADA	20 CHALLENGER CRESCENT SHERWOOD PARK AB T8H2R1 CANADA	Customer Order P020355	Sales Order 105545
				Certification ID: 107245	Revision: <input type="text"/>

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 A473-01, 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-320MO2, (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

48489

Sales Order	Quantity	Heat	Lot ID	Weight	Size	Customer Mark
105545-3	1	48489	48489-2C	2,745 LB Length: 163.3100 in, Diam: 8.6070 in		

Lot	Test	Result	Low Limit	High Limit	ASTM PRACTICES - ASTM A262
SPECIFICATION RESULTS					48489-2C Prac E LT P
FINAL LADLE CHEMISTRY FOR AIRMELT					
48489	C	0.018	0.000	0.030	
48489	Mn	1.81	1.25	2.00	
48489	P	0.023	0.000	0.040	
48489	S	0.021	0.020	0.025	
48489	Si	0.48	0.00	1.00	
48489	Cr	16.48	16.00	18.00	
48489	Ni	10.44	10.00	14.00	
48489	Mo	2.10	2.00	3.00	
48489	Cu	0.64	0.00	0.75	
48489	N	0.087	0.000	0.100	
48489	Co	0.09	0.00	0.20	
PASS / FAIL TESTS					
48489-2C	Carb Net				P
48489-2C	Macro Etch				P
REDUCTION AREA					
48489-2C	LT Default (%)	75	50	999	
TENSILE					
48489-2C	LT Default (PSI)	85000	75000	400000	
.2% YIELD					
48489-2C	LT Default (PSI)	39800	30000	400000	
ELONGATION 4D					
48489-2C	LT Default (%)	53	45	999	
BRINELL					
48489-2C	Default (BHN)	156	140	200	
GRAIN SIZE					
48489-2C	Grain Size TT (GRS)	3.5	0	9999	

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ELECTRALLOY
G. O. CARLSON PLATE



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Oil City PA 16301
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Customer Address
ASA ALLOYS
20 CHALLENGER CRESCENT
SHERWOOD PARK AB T8H2R1
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Certification ID: 107245 **Revision:**

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.
This material is guaranteed capable of passing Ultrasonic Testing in accordance with the above specification.
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 produced in accordance with the Electralloy Quality Control Program dated 08/18/2008, 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
The reported results represent the actual attributes of the material furnished and indicate full compliance with all applicable specification and contract requirements.
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: *William A. Deets*

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.