



49031



MATERIAL CERTIFICATION REPORT and CERTIFICATION OF QUALITY CONFORMANCE	Customer Address	Shipping Address	Print Date	Ship N	
 ELECTRALLOY G. O. CARLSON PLATE	 175 Main Street Oil City PA 16301 1 (800) 458-7273	COPPER & BRASS SALES	23-Apr-2010 12:02	10539	
		ACCOUNTS PAYABLE	COPPER & BRASS SALES	Customer Order	Sales O
		P.O. BOX 5116	10648 WEST LITTLE YORK	5400053583	10591
	SOUTHFIELD, MI 48086-511	SUITE 104	Certification ID: 107954	Revision: <input type="text"/>	
		HOUSTON, TX 77041			

Grade: 316L
 Specification: Type 316/316L (UNS S31600/S31603) - ASTM A262 practice E. ASTM A182/A182M-07, AMS 5648K, AMS 5652F, 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-320M02, (316) ASME SA-479/SA-479M, ASTM A 484/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 M
105914-1	1	49031	49031-5B	5,600 LB	Length: 144.5000 in; Diam: 13.1100 in	SSRD0175

Lot	Test	Result	Low Limit	High Limit	ASTM PRACTICES - ASTM A262	PASS
					49031-5B	Prac E LT
SPECIFICATION RESULTS						
FINAL LADLE CHEMISTRY FOR AIRGELT						
49031	C	0.019	0.000	0.030		
49031	Mn	1.83	1.25	2.00		
49031	P	0.027	0.000	0.040		
49031	S	0.022	0.020	0.025		
49031	Si	0.49	0.00	1.00		
49031	Cr	16.39	16.00	18.00		
49031	Ni	10.22	10.00	14.00		
49031	Mo	2.11	2.00	3.00		
49031	Cu	0.44	0.00	0.75		
49031	N	0.082	0.000	0.100		
49031	Co	0.15	0.00	0.20		
PASS / FAIL TESTS						
49031-5B	Carb Net		PASS			
49031-5B	Macro Etch		PASS			
REDUCTION AREA						
49031-5B	LT (%)	75	50	999		
TENSILE						
49031-5B	LT (PSI)	86500	75000	400000		
.2% YIELD						
49031-5B	LT (PSI)	43300	30000	400000		
ELONGATION 4D						
49031-5B	LT (%)	53	45	999		
BRINELL						
49031-5B	(BHN)	156	140	200		
GRAIN SIZE						
49031-5B	Grain Size TT (GRS)	3.5	0	9999		

4 pcs

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 ELECTRALLOY G. O. CARLSON PLATE	 G	175 Main Street	COPPER & BRASS SALES	23-Apr-2010 12:02	1053
		Oil City PA 16301	ACCOUNTS PAYABLE	Customer Order	Sales O
		P.O. BOX 5116	10648 WEST LITTLE YORK	5400053583	10591
		SOUTHFIELD, MI 48086-511	SUTTE 104	Certification ID: 107954	Revision: <input type="text"/>
			HOUSTON, TX 77041		

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 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

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.