

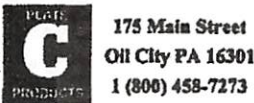
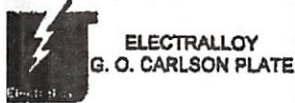
C+B PO 77944 WO 5935/6 CPA 6 FOE 40/80 (64pcs)

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

Customer Address
COPPER & BRASS SALES
ACCOUNTS PAYABLE
22355 WEST 11 MILE ROAD
SOUTHFIELD, MI 48034-4735

Shipping Address
COPPER & BRASS - MILWAUKEE
5230 ASHLAND WAY
FRANKLIN, WI 53132

Print Date Time 14-May-2013 11:43
Ship Note 123172
Certification ID
149330-1
Customer Order 5400177438-R04
Sales Order 116729



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

53280-2B

ade: 316L
Specification: Type 316/316L (UNS S31600/S31603) - ASTM A182/A182M-12b, AMS 5648L, AMS 5653H, ASTM A193/A193M-12b,(316), ASTM A320/A320M-11a (316), ASTM 79/A479M-12, ASTM A314-08, ASTM A473-01(2009), ASTM A 276- 10, NACE Std-MR0175-03, QQ-S-763F, ASTM A336/A336M-10a, ASME SA-182/SA-182M, ASME -336/SA-336M, ASME SA - 320/SA-320 M, (316)ASME SA-479/SA-479M,ASTM A4 84/A484M-12, SA-193/A193M 2010 Edition and any additional specifications which may be listed
Condition: HOT ROLLED / HOT FORGED, ANNEALED
Finish: ROUGH TURNED

Sales Order	Quantity	Heat	Lot ID	Weight	Size	Customer Mark
116729-5	1	53280	53280-2B	2,990 LB	Diam: 9.1040 in; Length: 159.8700 in	

Lot	Test	Result	Low Limit	High Limit
SPECIFICATION RESULTS				
ANAL LADLE CHEMISTRY FOR AIRMELT				
1280	C	0.016	0.000	0.030
1280	Mn	1.80	1.25	2.00
1280	P	0.026	0.000	0.040
1280	S	0.022	0.020	0.025
1280	Si	0.46	0.00	1.00
1280	Cr	16.51 ✓	16.00	18.00
1280	Ni	10.17 ✓	10.00	14.00
1280	Mo	2.08 ✓	2.00	3.00
1280	Cu	0.45	0.00	0.75
1280	N	0.085	0.000	0.100
1280	Co	0.19	0.00	0.20
LOSS / FAIL TESTS				
1280-2B	Carb Net	PASS		
1280-2B	Macro Etch	PASS		
REDUCTION AREA				
1280-2B	LT (%)	77.8	50	999
TENSILE				
1280-2B	LT (PSI)	86790	75000	400000
1/4 YIELD OFFSET				
1280-2B	LT (PSI)	44990	30000	400000
ELONGATION 4D				
1280-2B	LT (%)	57.3	45	999

BRINELL			
53280-2B	(BHN)	147	140 200
GRAIN SIZE			
53280-2B	Grain Size TT (GRS)	3.5	0 9999
ASTM PRACTICES - ASTM A262			
53280-2B	Prac E LT	PASS	

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

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



**ELECTRALLOY
G. O. CARLSON PLATE**



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

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116729

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.

All items are in full compliance with all purchase order and specification requirements.

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

Material Certification conforms to Certificate 3.1 as in EN 10204:2010

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

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 2, 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 was not exposed to Radium or other radioactive materials while at our facility.

Material represented was melted and manufactured in the USA

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: David A. Fulkerson

Title: QC Technician/Works Inspector

By:

SV
llc

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