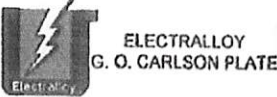



C+B PO 75812 W05416 CPA 10 80

50413

5v

MATERIAL CERTIFICATION REPORT and CERTIFICATION OF QUALITY CONFORMANCE		Customer Address	Shipping Address	Print Date Time	Ship Note
		COPPER & BRASS SALES	COPPER & BRASS SALES	22-Jun-2011 15:43	110710
		175 Main Street Oil City PA 16301 1 (800) 458-7273	ACCOUNTS PAYABLE 22355 WEST 11 MILE ROAD SOUTHFIELD, MI 48034-4735	10648 WEST LITTLE YORK SUITE 400 HOUSTON, TX 77041	Certification ID 111013-2
				Customer Order 5400096901-R05	

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-MR0175-03, 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 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


Sales Order	Quantity	Heat	Lot ID	Weight	Size	Customer Mark
109340-6	1	50413	50413-2B	5,910 LB	Diam: 13.1740 in; Length: 152.4300 in	

Lot	Test	Result	Low Limit	High Limit			
50413-2B	(BHN)	137					200
SPECIFICATION RESULTS							
FINAL LADLE CHEMISTRY FOR AIRMELT							
50413	C	0.019	0.000	0.030			
50413	Mn	1.78	1.25	2.00			
50413	P	0.030	0.000	0.040			
50413	S	0.024	0.020	0.025			
50413	Si	0.47	0.00	1.00			
50413	Cr	16.39	16.00	18.00			
50413	Ni	10.19	10.00	14.00			
50413	Mo	2.12	2.00	3.00			
50413	Cu	0.38	0.00	0.75			
50413	N	0.078	0.000	0.100			
50413	Co	0.16	0.00	0.20			
PASS / FAIL TESTS							
50413-2B	Carb Net	PASS					
50413-2B	Macro Etch	PASS					
REDUCTION AREA							
50413-2B	LT (%)	77	50	999			
TENSILE							
50413-2B	LT (PSI)	82500	75000	400000			
.2% YIELD							
50413-2B	LT (PSI)	40700	30000	400000			
ELONGATION 4D							
50413-2B	LT (%)	60	45	999			
BRINELL							

50413-2B (BHN) 137 0 200
GRAIN SIZE
50413-2B Grain Size TT (GRS) 3 0 999
ASTM PRACTICES - ASTM A262
50413-2B Prac E LT PASS

OK
6/17/11

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.

MATERIAL CERTIFICATION REPORT and CERTIFICATION OF QUALITY CONFORMANCE		Shipping Address	Print Date Time	Ship Note
		Customer Address COPPER & BRASS SALES ACCOUNTS PAYABLE 22355 WEST 11 MILE ROAD SOUTHFIEL, MI 48034-4735 1 (800) 458-7273	22-Jun-2011 15:43 Certification ID 111013-2 Customer Order 5400096901-R05	110710 Sales Order 109340
175 Main Street OH City PA 16301		COPPER & BRASS SALES 10648 WEST LITTLE YORK SUITE 400 HOUSTON, TX 77041		

Quality Statements:
 Material represented was not weld repaired.
 The mechanical tests have been performed at Modern Industries, Materials Research Division located at 613 West 11th Street Erie, PA 16512-0399 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.
 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 10204:2004
 Material represented was melted and manufactured in the USA
 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 produced in accordance with the Electroalloy Quality Control Program dated 08/23/2010, which meets the requirements of ISO9001(2008), MIL-145208A 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.
 Stainless Steel Bar, electric arc furnace melted, A.O.D. refined.
 * Rev #1 NACE to "03" 6/22/11 WD

Meets EU Electrical "RoHS". Contains NO "WEEE" relevant substances. Complies with DFARS-225.1-Buy American Act-Supplies. HWRR = Minimum Hot Working Reduction Ratio. Electroalloy 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 Electroalloy / GOC Plate. We hereby affirm that the reported results on this certification are correct and accurate. All tests and results and operations performed by (Electroalloy/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.
 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.

Name: William A. Deets
Title: QC Technician/Works Inspector
By: 