



P.O. # 6360 Part # 10-FOE-40 Desc: 40" CPA 50E S-40 316 S/S

EAV9162002

EARB02242-2

MATERIAL CERTIFICATION REPORT and CERTIFICATION OF QUALITY CONFORMANCE		Customer Address	Shipping Address	Print Date Time	Ship Note
 ELECTRALLOY G. O. CARLSON PLATE	 175 Main Street OH City PA 16301 1 (800) 458-7273	TA CHEN INTERNATIONAL INC	TA CHEN INTERNATIONAL	05-Apr-2022 10:47	162311
		5855 OBISPO AVENUE	9525 WALLISVILLE RD.	Certification ID	
		LONG BEACH, CA 90805	HOUSTON, TX 77013	192980-1	
				Customer Order	Sales Order
				LA0299-S	143531

Grade: 316L  
 Specification: Type 316/316L(UNS S31600/S31603) - AMS 5648M, AMS 5653J, AMS QQ-S-763D, ASTM A182/A182M-21, ASTM A193/A193M-20(316), ASTM A276-17, ASTM A314-19, ASTM A320/A320M-21a (316), ASTM A336/A336M-19, ASTM A473-19, ASTM A479/A479M-20, ASTM A484/A484M-20b, ANSI/NACE MR0175/ISO 15156-1:2015, ASME SA-182/SA-182M, ASME SA-193/SA-193M, ASME SA-320/SA-320M (316), ASME SA-336/SA-336M, ASME SA-479/SA-479M all ASME 2019 Editions, 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
143531-4	1	64183	64183-2A	7,415 LB	Diam: 13.0990 in; Length: 191.5000 in	

Lot	Test	Result	Low Limit	High Limit
<b>SPECIFICATION RESULTS</b>				
<b>FINAL LADLE CHEMISTRY FOR AIRMELT</b>				
64183	C	0.015	0.000	0.030
64183	Mn	1.74	1.25	2.00
64183	P	0.023	0.000	0.040
64183	S	0.022	0.020	0.025
64183	Si	0.66	0.00	1.00
64183	Cr	16.37	16.00	18.00
64183	Ni	10.18	10.00	14.00
64183	Mo	2.10	2.00	3.00
64183	Cu	0.34	0.00	0.50
64183	N	0.082	0.000	0.100
64183	Co	0.18	0.00	0.20
<b>PASS / FAIL TESTS</b>				
64183-2A	Carb Net	PASS		
64183-2A	Macro Etch	PASS		
<b>REDUCTION AREA</b>				
64183-2A	LT (%)	78	50	999
<b>TENSILE</b>				
64183-2A	LT (PSI)	84200	75000	400000
<b>3% YIELD OFFSET</b>				
64183-2A	LT (PSI)	40200	30000	400000
<b>ELONGATION 4D</b>				
64183-2A	LT (%)	65	45	999

**BRINELL**  
 64183-2A (BHN) 149 140 200  
**GRAIN SIZE**  
 64183-2A Grain Size TT (GRS) 3.5 0 9999  
**ASTM PRACTICES - ASTM A262**  
 64183-2A Prac E LT PASS

P.O.#: P125704

R#: R176746

ITEM#: 521534

HEAT#: 64183

BRANCH#: 875

**SPEED-E-MAC**



11/a

This certificate or document shall not be reproduced except in full, without written approval of Electralloy/G. O. Carlson Inc.  
 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.

Page 1 of 2

MILL TEST REPORT  
 TA CHEN INTERNATIONAL, INC.  
 Customer: ENCCAL PO#: P125704-875 SO#: LJOQSW3  
 Item: RBE1300 Bundle: EAV9162002 Heat#: 64183  
 This MTR contains 1 page (Page# 1)  
 MTR#: EARB02242-2-GII

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				<b>Customer Order</b>	<b>Sales Order</b>
				LA0299-S	143531

**Quality Statements:**  
 ASTM E1019-18, ASTM E572-13 and ASTM E1086-14 are methods used to determine the chemical analysis for Fe Base (High Alloy) alloys utilizing XRF, OES and Combustion and Fusion Methods.  
 The recording of false, fictitious or fraudulent statements or entries on this document may be punishable as a felony under Federal Statute, including US Code Title 18 Chapter 47.  
 At time of shipment, items and/or material produced under this order have not come in contact with Mercury or its compounds.  
 HWRR - 3.3:1 from a 25" square ingot.  
 Material Certification conforms to Certificate 3.1 as in EN 10204:2004  
 Material represented was Ultrasonically Inspected to Electralloy in house procedure WU1001 and found acceptable with no rejectable indications.  
 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 07/27/2020, which meets the requirements of AS9100:2016, ISO9001(2015), MIL-A-45208A including Amendment 1 and 2, ASME Code Section 3, Subsection NCA 3800.  
 Material satisfies DFARS 252.225-7008 Restriction on Acquisition of Specialty Metals.  
 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 Melt AOD Refined  
 The mechanical tests have been performed at Modern Industries, Materials Research Division located at 613 West 11th Street Erie, PA 16512-0399  
 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. 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).

**Name:** Bradley Moore  
**Title:** QC Technician  
**By:** *Bradley A. Moore*

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.

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MILL TEST REPORT  
 TA CHEN INTERNATIONAL, INC.  
 Customer: ENCCAL PO#: P125704-875 SO#: L1QSW3  
 Item: RB6L1300 Bundle: EAV9162002 Heat#: 64183  
 This MTR contains 2 pages (Page# 1)  
 MTR#: EARB02242-2.GII