

50606

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



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

Customer Address

JORGENSEN STEEL & ALUMINUM
1900 MITCHELL BOULEVARD
SCHAUMBURG, IL 60193

Shipping Address

EMJ
BAY #2
1900 MITCHELL BLVD.
SCHAUMBURG, IL 60193

Print Date Time

08-Jun-2011 8:23

Ship Note

111208

Certification ID

11157-4

Customer Order

P376442-423

Sales Order

109372

R461798

Grate: 316L
Specification: Type 316/316L (UNS S31600/S31603) - ASTM A262 practices 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 SIG-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.

Conditions: HOT ROLLED / HOT FORGED, ANNEALED
Finish: ROUGH TURNED

527279

| Sales Order | Quantity | Heat | Lot ID | Weight | Size | Customer Mark |
|-------------|----------|-------|----------|----------|---------------------------------------|---------------|
| 109372-1 | 1 | 50606 | 50606-3B | 8,970 LB | Dimm: 15.1350 in; Length: 173.3700 in | |

| Lot | Test | Result | Low Limit | High Limit |
|--|----------------------------|--------|-----------|------------|
| SPECIFICATION RESULTS | | | | |
| FINAL ANALYSE CHEMISTRY FOR AIRMELT | | | | |
| 50606 | C | 0.014 | 0.000 | 0.030 |
| 50606 | Mn | 1.79 | 1.25 | 2.00 |
| 50606 | P | 0.026 | 0.000 | 0.040 |
| 50606 | S | 0.020 | 0.020 | 0.025 |
| 50606 | Si | 0.47 | 0.00 | 1.00 |
| 50606 | Cr | 15.47 | 16.00 | 16.00 |
| 50606 | Ni | 10.64 | 10.00 | 14.00 |
| 50606 | Mo | 2.10 | 2.00 | 3.00 |
| 50606 | Cu | 0.37 | 0.00 | 0.75 |
| 50606 | N | 0.086 | 0.000 | 0.100 |
| 50606 | Co | 0.16 | 0.00 | 0.20 |
| PASS / FAIL TESTS | | | | |
| 50606-3B | Carb Net | PASS | | |
| 50606-3B | Macro Etch | PASS | | |
| REDUCTION AREA | | | | |
| 50606-3B | LT (%) | 78 | 50 | 999 |
| TENSILE | | | | |
| 50606-3B | LT (PSY) | 81000 | 75000 | 400000 |
| .2% YIELD | | | | |
| 50606-3B | LT (PSI) | 40100 | 30000 | 400000 |
| ELONGATION 4D | | | | |
| 50606-3B | LT (%) | 56 | 45 | 999 |
| BREINELL | | | | |
| 50606-3B | | | | |
| 50606-3B | GRAIN SIZE | 149 | 140 | 200 |
| 50606-3B | GRAIN SIZE TT (GRS) | 3.5 | 0 | 9999 |
| 50606-3B | ASTM PRACTICES - ASTM A262 | PASS | | |
| 50606-3B | PRAC E LT | | | |

The receipting 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**



ELECTRALLOY
G. O. CARLSON PLATE



175 Main Street
OH City PA 16301
1 (300) 458-7273

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1900 MITCHELL BOULEVARD
SCHAUMBURG, IL 60193

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111208

Certification ID

111527-4

Customer Order

P376442-423

Sales Order

109372

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, material represented had not come in contact with Mercury or any of its compounds nor with any mercury containing device employing a single boundary of containment.

Material Certification Conforms to Certificate 3.1 as in EN10204:2004

Material represented was melted and manufactured in the USA.

Ultrasonic inspection performed to Electralloy In House Procedure WU1001 - results pass - sound center.

Material represented was produced in accordance with the Electralloy Quality Control Program dated 08/23/2010, which meets the requirements of ISO9001(2008), MIL-I-45208A 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.

Melting and Refining Source - Electralloy

Method of melt, SPEED-E-MAC, stainless steel bar, electric arc furnace melted, A.O.D. refined.

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.

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).

Name: Duane E. Kline

Title: QC Technician/UT Technician/Works Inspector

By: *Duane E. Kline*

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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