



Certificate of Test E110300

HEAT E110300 ORDER 620575/ 12 BOL 0211796 * CERTIFICATION * 04/28/11

SHIP TO:
COPPER AND BRASS SALES
10648 WEST LITTLE YORK
SUITE 400
HOUSTON 770410000

----- YOUR ORDER & DATE -----
5400092573 4/28/11 CUST# 0316001 CUST TAG#SSRD02045

----- ITEM DESCRIPTION -----
GRADE 316L/316 Ship Condition CONDA
Size 316L RND CFA CONDA 2.1250 x 144.000 RL
Country of Melt: UNITED KINGDOM Country of Mfg.: UNITED STATES
NAFTA Country of Origin is Country of Melt

No weld repair
Free of mercury contamination, Free of radiation contamination
No WEEE relevant substances; Meets EU electrical ROHS

Total Bundles 1 Total Weight 1120

WO 2021048 Bundles: 1F

----- SPECIFICATIONS -----
MFG TO FINISHED BAR IN THE USA FROM BILLETS IMPORTED UNITED KINGDOM
AMS 5648K, 5653F SAE AMS-QQ-S-763B
ASME SA479 E07, A07-09, E10 ASTM A182 09
ASTM A262 02a Practice A/E ASTM A276 10
ASTM A479/A479M 10 ASTM A484 09
ASTM E112 96 ASTM A320 08 B8M Class 1
ASTM A193 09 B8M DIN 50049/EN 10204 3.1B
DFARS 252.225.7014 6/05 Federal Spec QQ-S-763F
Copper & Brass 316L MAXX NACE MR0175-03, mid-rad hard

----- MECHANICAL & OTHER TESTS -----
Hardness as shipped 160 HB
Hardness as shipped (82 HRB)
Grain size 6.0
Micro OK
Intergranular corrosion OK
Hardness as tested 00
Tensile strength, KSI (MPa) 88.8 (612)
0.2% Yield Strngth, KSI (MPa) 38.6 (266)
Elongation % in 4D 54.0
Reduction of area % 76.5

----- CHEMICAL COMPOSITION -----
Carbon (C) .017 Manganese (Mn) 1.690
Phosphorus (P) .029 Sulphur (S) .027
Silicon (Si) .386 Chromium (Cr) 16.640
Nickel (Ni) 10.070 Cobalt (Co) .280
Copper (Cu) .316 Moly (Mo) 2.040
Nitrogen (N) .076 Columbium (Cb) .018
Titanium (Ti) .002 Aluminum (Al) .005
Tin (Sn) .007 Boron (B) .004
Vanadium (V) .060
Columbium/
Tantalum (Cb+Ta) .018
Iron (Fe) Balance
Melt Practice EAF
Refining Practice AOD
De-long Ferrite

Knowingly & willfully falsifying or concealing a material act on this form, or making false, fictitious or fraudulent statements or representations herein could constitute a felony punishable under federal statutes. We hereby certify that the test results shown in this report are correct and accurate as contained in the records of the company and are in compliance with the specifications, codes, and standards listed above.

M.F. Marcanio, Quality Manager

Outokumpu Stainless Bar, Inc.
3043 Crenshaw Pkwy.
Richburg, SC 29728

From: Copper and Brass Sales CA

Cust: ATLANTIS INDUSTRIES

Del: 2401897913

Part:

PO: Bozo

Wgt: 159.000 LB

Date: 06/07/2012