

Rolled Alloys PO 76958 WO 5608 CPA 2 FOEL. 80.



Certificate of Test E111980

HEAT E111980 ORDER 628152/ 01 BOL 0215560 * CERTIFICATION * 01/18/12

SHIP TO:
ROLLED ALLOYS BAR CENTER
711 PHOENIX LAKE AVENUE

STREAMWOOD 601070000

ok
3/18/12

----- YOUR ORDER & DATE -----
103480 1/18/12 CUST# 0773001 CUST TAG#835045300001-01

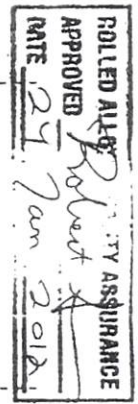
----- ITEM DESCRIPTION -----
GRADE 316L/316 Ship Condition CONDA
Size 316L RND HRART CONDA 3.7500 x 144.000 RL
Country of Melt: UNITED KINGDOM Country of Mfg.: SWEDEN
NAFTA Country of Origin is Country of Melt

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

Total Bundles 1 Total Weight 2668

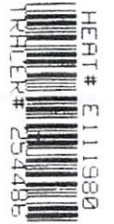
WO 2027161 Bundles: 1E

----- SPECIFICATIONS -----
AMS 5648L, 5653G SAE AMS-QQ-S-763B
ASME SA182 E07-E10, Add. 11a ASME SA193 E10 A11a
ASME SA479 E07-E10 A11 ASME SA320 B8M CL1 E10 A11a
ASTM A182 10a ASTM A262 10 Practice A/E
ASTM A276 10 ASTM A314 97
ASTM A479/A479M 11 ASTM A484 11
ASTM A320 11 B8M Class 1 ASTM A193 11 B8M
NACE MR0175-03 ISO 15156:03 DFARS 252.225.7009 10/4/11
Federal Spec QQ-S-763F UNS S31600, AISI 316
UNS S31603, AISI 316L Prodec Quality
EN 10204 Type 3.1 Document RA-53 RAM 316L
EN 10272 GR 1.4404 chemistry Process Annealed 1750F min



----- MECHANICAL & OTHER TESTS -----
Hardness as shipped (158 HB)
Hardness as shipped 81 HRB
Grain size 7.0
Micro OK
Intergranular corrosion OK
Hardness as tested 00
Tensile strength, KSI (MPa) 88.5 (610)
0.2% Yield Strngth, KSI (MPa) 44.4 (306)
Elongation % in 4D 53.0
Reduction of area % 75.0

----- CHEMICAL COMPOSITION -----
Carbon (C) .020 Manganese (Mn) 1.610
Phosphorus (P) .030 Sulphur (S) .024
Silicon (Si) .285 Chromium (Cr) 17.250 ✓
Nickel (Ni) 10.120 ✓ Cobalt (Co) .175
Copper (Cu) .458 Moly (Mo) 2.070 ✓
Nitrogen (N) .078 Columbium (Cb) .010
Titanium (Ti) .002 Aluminum (Al) .004
Tin (Sn) .008 Boron (B) .004
Vanadium (V) .060
Columbium/
Tantalum (Cb+Ta) .010
Iron (Fe) Balance
Melt Practice EAF
Refining Practice AOD
De-long Ferrite



SV
llc

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 29729

M.F. Marcanio