



Certificate of Test

* CERTIFICATION *

HEAT E90033 ✓ ORDER 604939/ 13 BOL 0202956 BUNDLE 2004337/1AA 06/30/09

E90033

----- YOUR ORDER & DATE -----
P00924 6/30/09 CUST# 1655000 CUST TAG#

----- ITEM DESCRIPTION -----
GRADE 316L Ship Condition CONDA
Size 316L RND HRART CONDA 8.5000 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 WEBS Relevant Substances; Meets EU Electrical ROHS

Total Bundles 1 Bundle Weight 2417

----- SPECIFICATIONS -----
AMS 5648K, 5653F SAE AMS-QQ-S-763B
ASME SA182 E07 ASME SA479 E07, A07 & A08
ASTM A182 08A ASTM A276 08A
ASTM A479/A479M 08 ASTM A484 08
DIN 50049/EN 10204 3.1B NACE MR0175-03, MID-RAD HARD
FEDERAL SPEC. QQ-S-763F UNS S31603, AISI 316L
UNS S31600, AISI 316 SOL ANN 1832F MIN/RAPID COOL
ASTM A193 08B B8M ASME SA193 B8M E07 (MCR)

----- MECHANICAL & OTHER TESTS -----
Hardness as shipped (137 HB)
Hardness as shipped 74 HRB
Grain size 4.0 Tensile strength, KSI (MPa) 81.0 (558)
Micro OK 0.2% Yield Strngth, KSI (MPa) 32.0 (221)
Intergranular corrosion OK
Macro OK Elongation % in 4D 63.0
Reduction of area % 76.0

----- CHEMICAL COMPOSITION -----
Carbon (C) .022 Manganese (Mn) 1.660
Phosphorus (P) .029 Sulphur (S) .025
Silicon (Si) .491 Chromium (Cr) 16.540
Nickel (Ni) 10.120 Cobalt (Co) .189
Copper (Cu) .353 Moly (Mo) 2.050
Nitrogen (N) .064 Columbium (Cb) .009
Titanium (Ti) .006 Aluminum (Al) .005
Tin (Sn) .006 Boron (B) .001
Tantalum (Ta) .005 Vanadium (V) .060
Columbium/
Tantalum (Cb+Ta) .014
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.
1043 Clenshaw Pkwy.
Richburg, SC 29729

M.F. Marcanio

5 F10P. 21940