

E90015

OUTOKUMPU

Certificate of Test

* CERTIFICATION *

HEAT E90015

ORDER 604939/ 11 BOL 0202956 BUNDLE 2002739/1N

06/30/09

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

----- ITEM DESCRIPTION -----
GRADE 316L Ship Condition CONDA
Size 316L RND HRART CONDA 5.2500 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 Bundle Weight 1790

----- 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 PRODEC QUALITY
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 (143 HB)
Hardness as shipped 76 HRB
Grain size 5.0 Tensile strength, KSI (MPa) 85.9 (592)
Micro OK 0.2% Yield Strength, KSI (MPa) 37.1 (256)
Intergranular corrosion OK
Macro OK Elongation % in 4D 58.0
Reduction of area % 74.0

----- CHEMICAL COMPOSITION -----
Carbon (C) .019 Manganese (Mn) 1.580
Phosphorus (P) .034 Sulphur (S) .025
Silicon (Si) .306 Chromium (Cr) 17.140
Nickel (Ni) 10.040 Cobalt (Co) .228
Copper (Cu) .452 Moly (Mo) 2.030
Nitrogen (N) .082 Columbium (Cb) .012
Titanium (Ti) .001 Aluminum (Al) .004
Tin (Sn) .011 Tantalum (Ta) .004
Vanadium (V) .050 Columbium/ Tantalum (Cb+Ta) .016
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. Marcano, Quality Manager

Outokumpu Stainless Bar, Inc.
3043 Crenshaw Pkwy
Richburg, SC 29729

COPY, M.F. Marcano