

HT# E43187

**OUTO  
KUMPU**

**Certificate of Test**

42871



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\* CERTIFICATION \*  
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HEAT K43187 ORDER 0465580/024 SON 10173A BOL 0129889 TAG 1705143 02/08/05

----- YOUR ORDER & DATE -----  
15209-OP 2/08/05 CUST TAG#11402123

----- ITEM DESCRIPTION -----  
GRADE 316L/316  
Size 316L CPA RND BAR 2-1/8 STD  
Ship Condition A  
Country of Melt: BRI  
Country of Mfg.: USA  
NAFTA Country of Origin is Country of Melt

Total Bundles 1 SON Weight 2044

----- SPECIFICATIONS -----  
MEG TO FINISHED BAR IN THE USA FROM BILLETS IMPORTED FROM BRITAIN  
AMS 5648K, 5653F  
ASME SA182 E01 A03 CHEMISTRY  
ASME SA479 E01  
ASTM A182-02 CHEMISTRY  
ASTM A276 03  
ASTM A479 03  
ASTM E112 96  
ASTM A193 01A B8M CLASS 1D  
EIL-S-7720A  
THER SUFF. TO SOLN CARBIDES  
FED STD QQ-S-763F  
FREE OF CONT. CARBIDE NETWORK  
FREE OF MERCURY CONTAMINATION  
SAR-AMS QQ-S-763  
ASME SA193 B8M CL1 E01 A02  
ASME SA320 B8M CL1 E01  
ASTM A262 98 PRACTICE E  
ASTM A314 97  
ASTM A484 03A  
ASTM A320 01 B8M CLASS 1  
DIN 50049/EN 10204 3.1B  
SOL ANNEAL @ 1900F MIN/WQ  
NACE MR0175-03  
UNS S31600/S31603, AISI 316/316L  
SOLUTION ANNEALED CONDITION  
NO WELD REPAIR

----- MECHANICAL & OTHER TESTS -----  
Test Condition A  
Hardness as shipped 178 HBW  
Hardness as shipped ( 87 HRBS)  
Grain size 7.0  
Micro OK  
Intergranular corrosion OK  
Macro OK  
Tensile strength, KSI (MPa) 90.4 ( 623)  
0.2% Yield Strength, KSI (MPa) 42.9 ( 295)  
Elongation % in 4D 50.6  
Reduction of area % 74.9

----- CHEMICAL COMPOSITION -----  
Carbon (C) .026  
Phosphorus (P) .027  
Silicon (Si) .352  
Nickel (Ni) 10.530  
Copper (Cu) .317  
Nitrogen (N) .073  
Aluminum (Al) .004  
Vanadium (V) .070  
Iron (Fe) Balance  
Manganese (Mn) 1.590  
Sulphur (S) .028  
Chromium (Cr) 17.140  
Cobalt (Co) .305  
Moly (Mo) 2.100  
Titanium (Ti) .005  
Tin (Sn) .000  
Melt Practice EAF  
Refining Practice AOD  
De-long Ferrite .0

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.

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

M.F. Marciano, Quality Manager

*M.F. Marciano*