

3/80

02 01- 08 09 09 FROM-

897 117 808 1-356

E72128

**OUTO  
KUMPU**

# Certificate of Test

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\* CERTIFICATION \*  
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HEAT E72128 ORDER 0496185/001 SON D66391 BCL 0147512 TAG 1697184 01/31/08

SHIP TO:  
A. M. CASTLE METALS  
3400 NORTH WOLF ROAD

FRANKLIN PARK IL 60131

----- YOUR ORDER & DATE -----  
01-40395 1/31/08 CUST# CASTLE01 CUST TAG#IAC 6805

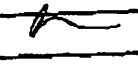
----- ITEM DESCRIPTION -----  
GRADE 316L/316  
Size 316L HRART RND BAR 5-1/4 STD Country of Melt: SWE  
Ship Condition A Country of Mfg.: SWE  
NAFTA Country of Origin is Country of Melt

Total Bundles 1 SON Weight 2830

----- SPECIFICATIONS -----  
AMS 5648K, 5653F SAE-AMS QQ-S-763B  
AMS-S-7720 ASME SA182 E04 A06 CHEM. ONLY  
ASME SA193 E04 A06 ASME SA479 E04 A06  
ASTM A182-06 CHEMISTRY ASTM A262 02A PRACTICE A/E  
ASTM A276 06 ASTM A479 06A  
ASTM E112 96 ASTM A193 06A B8M  
DIN 50049/EN 10204 3.1B UNS S31600, AISI 316  
UNS S31603, AISI 316L AM CASTLE 3316-98 REV 28  
SOLUTION ANNEALED CONDITION FREE OF CONT. CARBIDE NETWORK  
NO WELD REPAIR FREE OF MERCURY CONTAMINATION

----- MECHANICAL & OTHER TESTS -----  
Test Condition A  
Hardness as shipped (154 HBW )  
Hardness as shipped 80 HRBS  
Grain size 5.0 Tensile strength, KSI (MPa) 83.2 ( 574)  
Micro OK 0.2% Yield Strngth, KSI (MPa) 35.4 ( 244)  
Intergranular corrosion OK  
Macro OK Elongation % in 4D 60.0  
Reduction of area % 75.0

----- CHEMICAL COMPOSITION -----  
Carbon (C) .018 Manganese (Mn) 1.680  
Phosphorus (P) .031 Sulphur (S) .026  
Silicon (Si) .399 Chromium (Cr) 16.560  
Nickel (Ni) 10.110 Cobalt (Co) .229  
Copper (Cu) .451 Moly (Mo) 2.160  
Nitrogen (N) .065 Columbium (Cb) .013  
Titanium (Ti) .003 Aluminum (Al) .005  
Tin (Sn) .009 Boron (B) .001  
Tantalum (Ta) .004 Vanadium (V) .050  
Columbium/  
Tantalum (Cb+Ta) .017  
Iron (Fe) Balance  
Melt Practice RAF  
Refining Practice AOD  
De-long Ferrite

CASTLE METALS CORP.  
DATE RCVD 2/7/08  
IAC 6805  
APPROVED BY 

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 Cranshaw Pkwy.  
Richburg, SC 28729

