

OUTOKUMPU**Certificate of Test**

 * RE-CERTIFICATION *

HEAT E61710 ORDER 0486979/001 SON D60956 BOL 0141596 TAG 1827343 02/26/07

 SHIP TO:
 A.M. CASTLE & CO
 6501 BINGLE ROAD
 713-462-7100
 HOUSTON

TX 77092

 15 Pcs
 76-90

 ----- YOUR ORDER & DATE -----
 21-27920 2/13/07 CUST# CASTLE01 CUST TAG#IAC 6805

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

Total Bundles 1 SON Weight 1764

 ----- SPECIFICATIONS -----
 AMS 5648K, 5653F AMS-S-7720
 ASME SA182 E04 A06 CHEM. ONLY ASME SA193 E04 A06
 ASME SA479 E04 A06 ASTM A182-05A CHEMISTRY
 ASTM A262 02A PRACTICE A/E ASTM A276 05A
 ASTM A479 06 ASTM E112 96
 ASTM A193 04B B8M DIN 50049/EN 10204 3.1B
 FEDERAL SPEC. QQ-S-763F UNS S31600, AISI 316
 UNS S31603, AISI 316L AM CASTLE 3316-98 REV 27
 NO WELD REPAIR FREE OF MERCURY CONTAMINATION

 ----- MECHANICAL & OTHER TESTS -----
 Test Condition A
 Hardness as shipped (141 HBW)
 Hardness as shipped 76 HRBS
 Grain size 6.0 Tensile strength, KSI (MPa) 82.8 (571)
 Micro OK 0.2% Yield Strngth, KSI (MPa) 34.1 (235)
 Intergranular corrosion OK
 Macro OK Elongation % in 4D 61.0
 Reduction of area % 75.0

 ----- CHEMICAL COMPOSITION -----

Carbon (C)	.017	Manganese (Mn)	1.720
Phosphorus (P)	.029	Sulphur (S)	.026
Silicon (Si)	.532	Chromium (Cr)	16.450
Nickel (Ni)	10.100	Cobalt (Co)	.385
Copper (Cu)	.287	Moly (Mo)	2.040
Nitrogen (N)	.061	Columbium (Cb)	.041
Titanium (Ti)	.002	Aluminum (Al)	.004
Tin (Sn)	.007	Tantalum (Ta)	.004
Vanadium (V)	.080		.000
Columbium/ Tantalum (Cb+Ta)	.045		
Iron (Fe)	Balance		
Melt Practice	EAF		
Refining Practice	AOD		
De-long Ferrite	2.1		

 CASTLE METALS - HOU
 DATE REC'D 02/16/07
 REC'D FROM Outokumpu
 IAC 6805 RD 41753
 APPROVED BY EC

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

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