

Rolled Alloys
PO 77071
WO 5713 + 5714

CPA
3 FOEL 40
3 FOEL 80

OUTOKUMPU

Certificate of Test **E112155**

HEAT **E112155** ORDER 627291/ 01 BOL 0216096 * RE-CERTIFICATION * 03/07/12

SHIP TO:
ROLLED ALLOYS BAR CENTER
711 PHOENIX LAKE AVENUE

TRACER # **257320** 3/1/12
REVISED

STREAMWOOD 601070000

----- YOUR ORDER & DATE -----
I03377 3/07/12 CUST# 0773001 CUST TAG#835045701001-01

----- ITEM DESCRIPTION -----
GRADE **316L/316** 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 2 Total Weight 6260

WO 2027627 Bundles: 1H, 1I

AMS 5648L, 5653G
ASME SA182 E07-E10, Add. 11a
ASME SA479 E07-E10 A11
ASTM A182 10a
ASTM A276 10
ASTM A479/A479M 11
ASTM A320 11 B8M Class 1
NACE MRO175-03, ISO 15156:03
Federal Spec QQ-S-763F
UNS S31603, AISI 316L
EN 10204 Type 3.1 Document
EN 10272 GR 1.4404 chemistry

SPECIFICATIONS

SAE AMS-QQ-S-763B
ASME SA193 E10 A11a
ASME SA320 B8M CL1 E10 A11a
ASTM A262 10 Practice A/E
ASTM A314 97
ASTM A484 11
ASTM A193 11 B8M
DFARS 252.225.7009 10/4/11
UNS S31600, AISI 316
Prodec Quality
RA-53 RAM 316L
Process Annealed 1750F min

MECHANICAL & OTHER TESTS

Hardness as shipped (149 HB)
Hardness as shipped 79 HRB
Grain size 6.0 Tensile strength, KSI (MPa) 85.4 (589)
Micro OK 0.2% Yield Strngth, KSI (MPa) 38.4 (265)
Intergranular corrosion OK
Elongation % in 4D 56.0
Reduction of area % 76.0

CHEMICAL COMPOSITION

Carbon (C)	.019	Manganese (Mn)	1.600
Phosphorus (P)	.031	Sulphur (S)	.026
Silicon (Si)	.322	Chromium (Cr)	17.180 ✓
Nickel (Ni)	10.100 ✓	Cobalt (Co)	.161
Copper (Cu)	.427	Moly (Mo)	2.030 ✓
Nitrogen (N)	.086	Columbium (Cb)	.011
Titanium (Ti)	.002	Aluminum (Al)	.004
Tin (Sn)	.017	Boron (B)	.006
Vanadium (V)	.070		.000
Columbium/ Tantalum (Cb+Ta)	.011		
Iron (Fe)	Balance		
Melt Practice	EAF		
Refining Practice	AOD		
De-long Ferrite	2.0		

ROLLED ALLOY'S QUALITY ASSURANCE
APPROVED
DATE 3/11/12

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. Marciano, Quality Manager

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

M.F. Marciano

Scanned Bob