

HEAT E130333 ORDER 639674/ 01 BOL 0223984 * CERTIFICATION * 08/27/13

SHIP TO:
ROLLED ALLOYS BAR CENTER
711 PHOENIX LAKE AVENUE

STREAMWOOD 601070000

----- YOUR ORDER & DATE -----
I04830 8/27/13 CUST# 0773001 CUST TAG#835046405001-01

----- ITEM DESCRIPTION -----
GRADE 316L/316 Ship Condition CONDA
Size 316L RND HRART CONDA 13.0000 x 144.000 RL
Country of Melt: UNITED KINGDOM Country of Mfg.: UNITED KINGDOM
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 Total Weight 4517

WO 2039977 Bundles: 1B

AMS 5648L, 5653H
ASME SA182 E07-E10, Add. 11a
ASME SA479 E07-E10 A11
ASTM A182 13
ASTM A276 13
ASTM A479/A479M 13
ASTM A320 11 B8M Class 1
NACE MR0175-09, ISO 15156:09
Federal Spec QQ-S-763F
UNS S31603, AISI 316L
EN 10204 Type 3.1 Document
EN 10272 GR 1.4404 chemistry
Sol Ann 1900F min/Rapid Cool
NACE MR0103-10

----- 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 13
ASTM A193 12b B8M
DFARS 252.225.7009 10/4/11
UNS S31600, AISI 316
Prodec Quality
RA-53 RAM 316L
Butech BU-36 Rev 2
NACE MR0175-09, ISO 15156:09

ROLLED ALLOYS QUALITY ASSURANCE
APPROVED
DATE 1 Sept 2013

----- MECHANICAL & OTHER TESTS -----

Hardness as shipped (150 HB)			
Hardness as shipped 79 HRB			
Grain size 5.0	Tensile strength, KSI (MPa)	79.5 (548)	
Micro OK	0.2% Yield Strngth, KSI (MPa)	36.8 (254)	
Intergranular corrosion OK	Elongation % in 4D	64.0	
	Reduction of area %	77.0	

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

Carbon (C) .015	Manganese (Mn) 1.570
Phosphorus (P) .037	Sulphur (S) .025
Silicon (Si) .280	Chromium (Cr) 16.700 ✓
Nickel (Ni) 10.130 ✓	Cobalt (Co) .229
Copper (Cu) .390	Moly (Mo) 2.030 ✓
Nitrogen (N) .077	Columbium (Cb) .009
Titanium (Ti) .002	Aluminum (Al) .004
Tin (Sn) .008	Boron (B) .001
Tantalum (Ta) .004	Vanadium (V) .040
Tungstem (W) .063	
Columbium/ Tantalum (Cb+Ta) .013	
Iron (Fe) Balance	
Melt Practice EAF	
Refining Practice AOD	
De-long Ferrite	

HEAT # E130333
TRACER # 0401836US

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