

HEAT E150321 ORDER 659394/ 07 BOL 0232056 * CERTIFICATION * 05/13/15

SHIP TO:
ROLLED ALLOYS
111 BLEAMS RD

KITCHENER NSC 2G2 000000000

----- YOUR ORDER & DATE -----
0046462ME 4/23/15 CUST# 0773002 CUST TAG#0003010

----- ITEM DESCRIPTION -----
GRADE 316L/316 Ship Condition CONDA
SIZE 316L RND CRA CONDA 3.2500 x 144.000 RL
Country of Melt: UNITED KINGDOM Country of Mfg.: UNITED STATES
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 2034 Approx. Hot Red. Ratio 4:1

WO 2061623 Bundles: 1C

----- SPECIFICATIONS -----
MFG TO FINISHED BAR IN THE USA FROM BILLETS IMPORTED UNITED KINGDOM
AMS 5648L, 5653H SAE AMS-00-S-763C
ASME SA182 2007-2013 Ed ASME SA193 2013 Edition
ASME SA479 2007-2013 Ed. ASME SA320 B8M CL1, 2013 Ed.
ASTM A182 14b ASTM A262 13 Practice A/E
ASTM A276-15 ASTM A314 13a
ASTM A479/A479M 14 ASTM A484 15
ASTM A320 11 B8M Class 1 ASTM A193 14 B8M
NACE MR0175-09, ISO 15156:09 DFARS 252.225.7009 10/4/11
Federal Spec QQ-S-763F UNS S31603, AISI 316
UNS S31603, AISI 316L Prodec Quality
EN 10204 Type 3.1 Document RA-53 RAM 316L
EN 10272 GR 1.4404 chemistry Butech BU-36 Rev 2
DFARS 225.7002-3(B)(1) NACE MR0103-10
EN 10204 Type 3.1 Document Solution Anneal 1900Fmin/WQ
Solution Anneal at 1900F minimum/ Water Quench

----- MECHANICAL & OTHER TESTS -----
Hardness as shipped 156 HB
Hardness as shipped (81 HRC)
Grain size 6.5 Tensile strength, KSI (MPa) 87.6 (604)
Micro OK 0.2% Yield Strength, KSI (MPa) 37.5 (259)
Intergranular corrosion OK
Elongation % in 4D 58.0
Reduction of area % 75.2

-- Continued --

1. C2
OK

HEAT # E150321



TRACER # 0002293ED

Nov 08/16

M.E. Mancini

CPA 3 TBR 40 10# 8000 V-4 07 410

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CHEMICAL COMPOSITION

Carbon (C)	.020	Manganese (Mn)	1.690
Phosphorus (P)	.034	Sulphur (S)	.026
Silicon (Si)	.400	Chromium (Cr)	16.680 ✓
Nickel (Ni)	10.090 ✓	Cobalt (Co)	.308
Copper (Cu)	.520	Moly (Mo)	2.040 ✓
Nitrogen (N)	.077	Columbium (Cb)	.026
Titanium (Ti)	.002	Aluminum (Al)	.006
Tin (Sn)	.011	Boron (B)	.001
Tantalum (Ta)	.002	Vanadium (V)	.050
Tungsten (W)	.079		.000
Columbium/ Tantalum (Cb+Ta)	.028		
Iron (Fe)	Balance		
Melt Practice	EAH		
Refining Practice	AOD		
De-long Ferrite	.9		

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

CPA 3TBR 40 P# 80040 W# 0170

Nov 08/16
i-c
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ROLLED ALLOYS

Receiving Inspection

By: *[Signature]*
Date: 8/17/16

HEAT * E150321



TRACER * 0002221ED

M.F. Marcanio