

CO#3488

HEAT E141519 ORDER 658030/ 01 BOL 0231115 * CERTIFICATION * 02/23/15

SHIP TO:
ROLLED ALLOYS INC.
CUSTOMER PICK UP
3173 CRENSHAW PARKWAY
RICHBURG 297290000

----- YOUR ORDER & DATE -----
0122258-RCH 2/16/15 CUST# 0773001 CUST TAG#

----- ITEM DESCRIPTION -----
GRADE 316L/316 Ship Condition CONDA
Size 316L RND HRART CONDA 15.0000 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 5229 Approx. Hot Red. Ratio 3:1

WO 2056791 Bundles: 1A

-----	SPECIFICATIONS	-----
AMS 5648L, 5653H	SAE AMS-QQ-S-763C	
ASME SA182 2007-2013 Ed	ASME SA193 2013 Edition	
ASME SA479 2007-2013 Ed.	ASME SA320 B8M CL1, 2013 Ed.	
ASTM A182 13a	ASTM A262 13 Practice A/E	
ASTM A276-15	ASTM A314 13a	
ASTM A479/A479M 14	ASTM A484 14a	
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 S31600, 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	
Sol Ann 1900F min/Rapid Cool		

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

Hardness as shipped (141 HB)		
Hardness as shipped 76 HRB		
Grain size 4.5	Tensile strength, KSI (MPa)	82.0 (565)
Micro OK	0.2% Yield Strngth, KSI (MPa)	39.3 (271)
Intergranular corrosion OK		
	Elongation % in 4D	62.0
	Reduction of area %	80.0
	Charpy Test Temperature	RT

-- Continued --

M.F. Mancoske

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

Carbon (C)	.021	Manganese (Mn)	1.620
Phosphorus (P)	.032	Sulphur (S)	.027
Silicon (Si)	.320	Chromium (Cr)	16.880
Nickel (Ni)	10.200	Cobalt (Co)	.235
Copper (Cu)	.410	Moly (Mo)	2.070
Nitrogen (N)	.077	Columbium (Cb)	.026
Titanium (Ti)	.003	Aluminum (Al)	.005
Tin (Sn)	.010	Boron (B)	.001
Tantalum (Ta)	.002	Vanadium (V)	.050
Tungsten (W)	.084		.000
Columbium/ Tantalum (Cb+Ta)	.028		
Iron (Fe)	Balance		
Melt Practice	EAF		
Refining Practice	AOD		
De-long Ferrite	1.2		

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