

HEAT E140552 ORDER 652046/ 05 BOL 0228054 * CERTIFICATION * 06/27/14

SHIP TO:
ASA ALLOYS EDMONTON
20 CHALLENGER CRESCENT
SHERWOOD PARK
ALBERTA T8H 2R1 000000000

----- YOUR ORDER & DATE -----
P033427 6/27/14 CUST# 1550000 CUST TAG#

----- ITEM DESCRIPTION -----
GRADE 316L Ship Condition CONDA
Size 316L RND GFA CONDA 2.1250 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 970 Approx. Hot Red. Ratio 9:1

WO 2051939 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 B8M CL1, 2013 Ed.
ASME SA479 2007-2013 Ed. ASME SA320 B8M CL1, 2013 Ed.
ASTM A182 13a ASTM A193 12b B8M Class 1D
ASTM A262 98 Practice E ASTM A276 13a
ASTM A479/A479M 13b ASTM A320 11 B8M Class 1
ASTM A 182-82-97C DIN 50049/EN 10204 Type 3.1
Federal Spec QQ-S-763F Federal Spec QQ-S-763E AM 1
Prodec Quality NACE MR0175-09, ISO 15156:09
Solution Anneal at 1900F minimum/ Water Quench

----- MECHANICAL & OTHER TESTS -----
Hardness as shipped 160 HB
Hardness as shipped (82 HRB)
Grain size 7.0 Hardness as tested 00
Micro OK Tensile strength, KSI (MPa) 88.3 (609)
Intergranular corrosion OK 0.2% Yield Strength, KSI (MPa) 38.8 (268)
Elongation % in 4D 53.0
Reduction of area % 73.7

----- CHEMICAL COMPOSITION -----
Carbon (C) .022 Manganese (Mn) 1.730
Phosphorus (P) .036 Sulphur (S) .026
Silicon (Si) .410 Chromium (Cr) 16.780
Nickel (Ni) 10.030 Cobalt (Co) .268
Copper (Cu) .520 Moly (Mo) 2.100
Nitrogen (N) .078 Columbium (Cb) .028
Titanium (Ti) .003 Aluminum (Al) .006
Tin (Sn) .012 Boron (B) .001
Tantalum (Ta) .002 Vanadium (V) .040
Tungsten (W) .059 .000
Columbium/
Tantalum (Cb+Ta) .030
Iron (Fe) Balance
Melt Practice EAF
Refining Practice AOD
De-long Ferrite 1.4

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.