

PRODEC QUALITY

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HEAT E151030 ORDER 670267/ 03 BOL 0237613 * CERTIFICATION * 11/21/16

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

----- YOUR ORDER & DATE -----
PO39547 10/28/16 CUST# 1550000 CUST TAG#

----- ITEM DESCRIPTION -----
GRADE 316L PRODEC QUALITY 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 8968 Approx. Hot Red. Ratio 3:1

WO 2071439 Bundles: 1B

----- SPECIFICATIONS -----
AMS 5648M, 5653H SAE AMS-QQ-S-763D
ASME SA182 2007-2015 Ed ASME SA193 B8M CL1, 2015 Ed.
ASME SA479 2007-2015 Ed. ASME SA320 B8M CL1, 2015 Ed.
ASTM A182 16a ASTM A193 16 B8M Class 1D
ASTM A262 15 Practice A/E ASTM A276-16a
ASTM A479/A479M 16a ASTM A320 15a 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

----- MECHANICAL & OTHER TESTS -----
Hardness as shipped (143 HB)
Hardness as shipped 77 HRB
Grain size 2.5 Tensile strength, KSI (MPa) 78.5 (541)
Micro OK 0.2% Yield Strngth, KSI (MPa) 39.8 (274)
Intergranular corrosion OK
Elongation % in 4D 64.6
Reduction of area % 67.0

----- CHEMICAL COMPOSITION -----
Carbon (C) .017 Manganese (Mn) 1.620
Phosphorus (P) .034 Sulphur (S) .024
Silicon (Si) .310 Chromium (Cr) 16.630
Nickel (Ni) 10.130 Cobalt (Co) .357
Copper (Cu) .590 Moly (Mo) 2.040
Nitrogen (N) .071 Columbium (Cb) .038
Titanium (Ti) .003 Aluminum (Al) .005
Tin (Sn) .012 Vanadium (V) .060
Tungsten (W) .089
Columbium/
Tantalum (Cb+Ta) .038
Iron (Fe) Balance
Melt Practice EAF
Refining Practice AOD
De-long Ferrite .8

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, Quality Manager