

HEAT E170598 ORDER 673927/ 01 BOL 0239813 \* CERTIFICATION \* 06/27/17

SHIP TO:  
COPPER & BRASS SALES  
TMX DIVISION  
13338 ORDEN DRIVE  
SANTA FE SPRINGS 906700000

----- YOUR ORDER & DATE -----  
5400348312 4/21/17 CUST# 0316001 CUST TAG#SSRD01323

----- ITEM DESCRIPTION -----  
GRADE 316L/316 PRODEC QUALITY Ship Condition CONDA  
Size 316L RND HRART CONDA 4.0000 x 144.000 RL  
Country of Melt: UNITED KINGDOM Country of Mfg.: SWEDEN  
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 2150 Approx. Hot Red. Ratio 13:1

WO 2077126 Bundles: 1A

----- SPECIFICATIONS -----  
AMS 5648M, 5653H SAE AMS-QQ-S-763D  
ASME SA479 2007-2015 Ed. ASTM A182/A182M 16a  
ASTM A262 15 Practice A/E ASTM A276-17  
ASTM A479/A479M 17 ASTM A484 16  
ASTM E112 96 ASTM A320 17a B8M Class 1  
ASTM A193 16 B8M DIN 50049/EN 10204 Type 3.1  
DFARS 252.225.7009 10/4/11 Federal Spec QQ-S-763F  
Copper & Brass 316L MAXX NACE MR0175-09, mid-rad hard  
NACE MR0103-10 UNS S31600, AISI 316  
UNS S31603, AISI 316L

----- MECHANICAL & OTHER TESTS -----  
Hardness as shipped (156 HB )  
Hardness as shipped 81 HRB  
Grain size 6.0 Tensile strength, KSI (MPa) 86.4 ( 596)  
Micro OK 0.2% Yield Strngth, KSI (MPa) 38.7 ( 267)  
Intergranular corrosion OK  
Elongation % in 4D 55.0  
Reduction of area % 76.0

----- CHEMICAL COMPOSITION -----  
Carbon (C) .020 Manganese (Mn) 1.610  
Phosphorus (P) .029 Sulphur (S) .026  
Silicon (Si) .440 Chromium (Cr) 16.720  
Nickel (Ni) 10.100 Cobalt (Co) .215  
Copper (Cu) .590 Moly (Mo) 2.060  
Nitrogen (N) .077  
Iron (Fe) Balance  
Melt Practice EAF  
Refining Practice AOD  
De-long Ferrite 1.5

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

Outokumpu Stainless Bar, LLC  
3043 Crenshaw Pkwy  
Richburg, SC 29729

From: TK Materials CA, Ltd.

Cust. ATLANTIS INDUSTRIES

CstAr

Wgt.: 136 LB

Del.: 2405430325

CstOr Bozo Sept 6, 2017

Date 09/08/2017

*M.F. Marcanio*

*Thomas Sanchez*