

P.O. Number 5335  
Part Number 3 FOUR 40510.770-  
D9V10



# Certificate of Test

PRODEC QUALITY

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HEAT E180310 ORDER 681451/ 10 BOL 0244579 \* CERTIFICATION \* 09/04/18

SHIP TO:  
COPPER AND BRASS SALES  
800 THYSSENKRUPP PARKWAY

NORTHWOOD 436190000

----- YOUR ORDER & DATE -----  
5400398808 4/19/18 CUST# 0316001 CUST TAG#SSRD00628

----- ITEM DESCRIPTION -----  
GRADE 304L/304 PRODEC QUALITY Ship Condition CONDA  
Size 304L RND HRART CONDA 5.2500 x 144.000 RL  
Country of Melt: UNITED KINGDOM Country of Mfg.: SWEDEN  
No weld repair  
Free of mercury contamination, Free of radiation contamination  
No WEEE relevant substances; Meets RoHS-2011/65/EU and 2015/863

Total Bundles 1 Total Weight 2655 Approx. Hot Red. Ratio 8:1

WO 2086068 Bundles: 1A

----- SPECIFICATIONS -----  
AMS 5639J, 5647K SAE AMS-QQ-S-763D  
UNS S30400, AISI 304 ASME SA479 2017 Ed.  
UNS S30403, AISI 304L ASTM A276/A276M 17  
ASTM A479/A479M 18 ASTM A484/A484M 16  
DIN 50049/EN 10204 Type 3.1 Solution Annealed Condition  
Federal Spec QQ-S-763F Copper & Brass 304L MAXX  
ASTM A182/A182M 18 ASTM F899 12b  
NACE MR0103-10 NACE MR0175-09, ISO 15156:09

----- MECHANICAL & OTHER TESTS -----  
Hardness as shipped (169 HB )  
Hardness as shipped 86 HRB  
Grain size 6.0 Tensile strength, KSI (MPa) 90.6 ( 625)  
Micro OK 0.2% Yield Strngth, KSI (MPa) 40.9 ( 282)  
Intergranular corrosion OK  
Elongation % in 4D 56.0  
Reduction of area % 73.0

----- CHEMICAL COMPOSITION -----  
Carbon (C) .018 Manganese (Mn) 1.600  
Phosphorus (P) .032 Sulphur (S) .027  
Silicon (Si) .420 Chromium (Cr) 18.660  
Nickel (Ni) 8.090 Cobalt (Co) .184  
Copper (Cu) .470 Moly (Mo) .430  
Nitrogen (N) .084 Columbium (Cb) .030  
Titanium (Ti) .004 Aluminum (Al) .005  
Tin (Sn) .011 Boron (B) .001  
Tantalum (Ta) .006 Vanadium (V) .070  
Tungsten (W) .070  
Columbium/  
Tantalum (Cb+Ta) .036  
Iron (Fe) Balance  
Melt Practice EAF  
Refining Practice AOD  
De-long Ferrite

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

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

*M.F. Marcano*

From: TK Materials CA, Ltd.  
Cust. LIBERTAS INDUSTRIES INC  
CstAr  
Wgt.: 203.784 LB

Del.: 2407208003  
CstOr PO#CPASN3740  
Date 12/23/2019

*Thomas Sanchez*

INS