

# Certificate of Test

## E140178-8.5

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HEAT E140178 ORDER 649041/ 04 BOL 0228472 \* RE-CERTIFICATION \* 09/17/14

SHIP TO:  
COPPER AND BRASS SALES  
8001 THYSSENKRUPP PARKWAY

NORTHWOOD 436190000

----- YOUR ORDER & DATE -----  
5400215746 2/28/14 CUST# 0316001 CUST TAG#SSRD00364

----- ITEM DESCRIPTION -----  
GRADE 304L/304 Ship Condition CONDA  
Size 304L RND HRART CONDA 8.5000 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 1802 Approx. Hot Red. Ratio 5:1

WO 2049355 Bundles: 1B

----- SPECIFICATIONS -----  
MFG TO FINISHED BAR IN THE USA FROM BILLETS IMPORTED UNITED KINGDOM  
AMS 5639H, 5647J SAE AMS-QQ-S-763C  
UNS S30400, AISI 304 ASME SA479 2007-2013 Ed.  
UNS S30403, AISI 304L ASTM A276 13a  
ASTM A479/A479M 14 ASTM A484 14  
DIN 50049/EN 10204 Type 3.1 Solution Annealed Condition  
Federal Spec QQ-S-763F Copper & Brass 304L MAXX  
ASTM A182 13a ASTM F899 12  
NACE MR0175-09, ISO 15156:09 EN 10204 Type 3.1 Document

----- MECHANICAL & OTHER TESTS -----  
Hardness as shipped 142 HB  
Hardness as shipped ( 76 HRB )  
Grain size 4.0 Tensile strength, KSI (MPa) 82.5 ( 569 )  
Micro OK 0.2% Yield Strngth, KSI (MPa) 34.9 ( 241 )  
Intergranular corrosion OK  
Elongation % in 4D 56.0  
Reduction of area % 80.0

----- CHEMICAL COMPOSITION -----  
Carbon (C) .015 Manganese (Mn) 1.920  
Phosphorus (P) .036 Sulphur (S) .029  
Silicon (Si) .270 Chromium (Cr) 18.190  
Nickel (Ni) 8.100 Cobalt (Co) .150  
Copper (Cu) .470 Moly (Mo) .340  
Nitrogen (N) .090 Columbium (Cb) .016  
Titanium (Ti) .002 Aluminum (Al) .006  
Tin (Sn) .010 Boron (B) .001  
Tantalum (Ta) .001 Vanadium (V) .060  
Tungsten (W) .031 .000  
Columbium/  
Tantalum (Cb+Ta) .017  
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. Marcanio, Quality Manager

