

Certificate of Test

E140533 - 15"

HEAT E140533 ORDER 658479/ 01 BOL 0231641 * CERTIFICATION * 04/09/15

SHIP TO:
COPPER & BRASS SALES
19044 95A AVE
SURREY BC V4N 4P2
SURREY 000000000

----- YOUR ORDER & DATE -----
5400255463 3/05/15 CUST# 0316001 CUST TAG#SSRD01246

----- ITEM DESCRIPTION -----
GRADE 316L/316 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 4887 Approx. Hot Red. Ratio 3:1

WO 2053908 Bundles: 1B

----- SPECIFICATIONS -----
AMS 5648L, 5653H SAE AMS-QQ-S-763C
ASME SA479 2007-2013 Ed. ASTM A182 14b
ASTM A262 13 Practice A/E ASTM A276-15
ASTM A479/A479M 14 ASTM A484 15
ASTM E112 96 ASTM A320 11 B8M Class 1
ASTM A193 14 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

----- MECHANICAL & OTHER TESTS -----
Hardness as shipped (142 HB)
Hardness as shipped 76 HRB
Grain size 5.0 Tensile strength, KSI (MPa) 82.0 (565)
Micro OK 0.2% Yield Strngth, KSI (MPa) 35.8 (247)
Intergranular corrosion OK
Elongation % in 4D 61.0
Reduction of area % 78.0

----- CHEMICAL COMPOSITION -----
Carbon (C) .016 Manganese (Mn) 1.600
Phosphorus (P) .027 Sulphur (S) .024
Silicon (Si) .360 Chromium (Cr) 16.740
Nickel (Ni) 10.250 Cobalt (Co) .263
Copper (Cu) .320 Moly (Mo) 2.070
Nitrogen (N) .073 Columbium (Cb) .008
Titanium (Ti) .002 Aluminum (Al) .005
Tin (Sn) .006 Tantalum (Ta) .001
Vanadium (V) .030 Tungsten (W) .081
Columbium/
Tantalum (Cb+Ta) .009
Iron (Fe) Balance
Melt Practice EAF
Refining Practice AOD
De-long Ferrite 1.6

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

