



Certificate of Test

E120955

HEAT E120955 ORDER 634483/ 10 BOL 0219297 * CERTIFICATION * 10/02/12

SHIP TO:
COPPER AND BRASS SALES
5230 ASHLAND WAY

FRANKLIN 531320000

----- YOUR ORDER & DATE -----
5400158305 10/02/12 CUST# 0316001 CUST TAG#SSRD00372

----- ITEM DESCRIPTION -----
GRADE 316L/316 Ship Condition CONDA
Size 316L RND HRART CONDA 6.2500 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 2 Total Weight 5245

WO 2033892 Bundles: 1D, 1E

----- SPECIFICATIONS -----
AMS 5648L, 5653G SAE AMS-QQ-S-763B
ASME SA479 E07-E10 A11 ASTM A182 12
ASTM A262 10 Practice A/E ASTM A276 10
ASTM A479/A479M 11 ASTM A484 11
ASTM E112 96 ASTM A320 11 B8M Class 1
ASTM A193 11 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 (143 HB)
Hardness as shipped (76 HRB)
Grain size 5.5 Tensile strength,KSI (MPa) 83.7 (577)
Micro OK 0.2% Yield Strngth,KSI(MPa) 36.3 (250)
Intergranular corrosion OK
Elongation % in 4D 54.0
Reduction of area % 75.0

----- CHEMICAL COMPOSITION -----
Carbon (C) .019 Manganese (Mn) 1.640
Phosphorus (P) .035 Sulphur (S) .026
Silicon (Si) .320 Chromium (Cr) 17.320
Nickel (Ni) 10.120 Cobalt (Co) .380
Copper (Cu) .550 Moly (Mo) 2.040
Nitrogen (N) .080 Columbium (Cb) .040
Titanium (Ti) .002 Aluminum (Al) .003
Tin (Sn) .009 Boron (B) .001
Tantalum (Ta) .006 Vanadium (V) .070
Tungstem (W) .110 .000
Columbium/
Tantalum (Cb+Ta) .046
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