

C+B PO 47214 WO 5740 CPA 4 FOUR Nozzle

OUTOKUMPU

Certificate of Test

E120015

HEAT E120015 ORDER 630864/ 01 BOL 0217374 * RE-CERTIFICATION * 06/11/12

SHIP TO:
COPPER & BRASS SALES
SUITE 106
5441 NE 148TH AVENUE
PORTLAND 972300000

*ok
6/15/12*

----- YOUR ORDER & DATE -----
5400141643 6/11/12 CUST# 0316001 CUST TAG#SSRD00605

----- ITEM DESCRIPTION -----
GRADE 304L/304 Ship Condition CONDA
Size 304L RND HRART CONDA 6.5000 x 144.000 RL
Country of Melt: SWEDEN 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 2955

WO 2028789 Bundles: 1C

----- SPECIFICATIONS -----
AMS 5639H, 5647J SAE AMS-QQ-S-763B
UNS S30400, AISI 304 ASME SA479 E07-E10 A11
UNS S30403, AISI 304L ASTM A276 10
ASTM A479/A479M 11 ASTM A484 11
DIN 50049/EN 10204 Type 3.1 Solution Annealed Condition
Federal Spec QQ-S-763F Copper & Brass 304L MAXX
ASTM A182 10a NACE MR0175-09, ISO 15156:09

----- MECHANICAL & OTHER TESTS -----
Hardness as shipped (152 HB)
Hardness as shipped 80 HRB
Grain size 5.0 Tensile strength, KSI (MPa) 85.9 (592)
Micro OK 0.2% Yield Strngth, KSI (MPa) 36.3 (250)
Intergranular corrosion OK
Elongation % in 4D 62.0
Reduction of area % 74.0

----- CHEMICAL COMPOSITION -----
Carbon (C) .019 Manganese (Mn) 1.600
Phosphorus (P) .034 Sulphur (S) .027
Silicon (Si) .382 Chromium (Cr) 18.240 ✓
Nickel (Ni) 8.160 ✓ Cobalt (Co) .130
Copper (Cu) .440 Moly (Mo) .340 ✓
Nitrogen (N) .090 Columbium (Cb) .015
Titanium (Ti) .002 Aluminum (Al) .005
Tin (Sn) .014 Tantalum (Ta) .002
Vanadium (V) .080 Tungstem (W) .080
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

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M.F. Marcanio