



# HT# E172050 Certificate of Test

PRODEC QUALITY

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HEAT E172050 ORDER 679866/ 04 BOL 0243218 \* CERTIFICATION \* 05/04/18

SHIP TO:  
COPPER AND BRASS SALES  
8001 THYSSENKRUPP PARKWAY

NORTHWOOD 436190000

----- YOUR ORDER & DATE -----  
5400386752 2/08/18 CUST# 0316001 CUST TAG#SSRD00372

----- ITEM DESCRIPTION -----  
GRADE 316L/316 PRODEC QUALITY 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 RoHS-2011/65/EU and 2015/863

Total Bundles 1 Total Weight 2855 Approx. Hot Red. Ratio 5:1

WO 2082020 Bundles: 1B

----- SPECIFICATIONS -----  
AMS 5648M, 5653H SAE AMS-QQ-S-763D  
ASME SA479 2017 Ed. ASTM A182/A182M 17  
ASTM A262 15 Practice A/E ASTM A276-17  
ASTM A479/A479M 18 ASTM A484/A484M 16  
ASTM E112-13 ASTM A320 17a B8M Class 1  
ASTM A193 16 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  
NACE MR0103-10 UNS S31600, AISI 316  
UNS S31603, AISI 316L

----- MECHANICAL & OTHER TESTS -----  
Hardness as shipped (158 HB )  
Hardness as shipped ( 82 HRB )  
Grain size 5.5 Tensile strength, KSI (MPa) 87.7 ( 605)  
Micro OK 0.2% Yield Strngth, KSI (MPa) 40.0 ( 276)  
Intergranular corrosion OK  
Elongation % in 4D 56.0  
Reduction of area % 74.0

----- CHEMICAL COMPOSITION -----  
Carbon (C ) .018 Manganese (Mn) 1.660  
Phosphorus (P ) .031 Sulphur (S ) .025  
Silicon (Si) .440 Chromium (Cr) 16.750  
Nickel (Ni) 10.080 Cobalt (Co) .264  
Copper (Cu) .390 Moly (Mo) 2.030  
Nitrogen (N ) .078  
Iron (Fe) Balance  
Melt Practice EAF  
Refining Practice AOD  
De-long Ferrite 1.7

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