

E111248

3 x 144"

OUTOKUMPU

Certificate of Test

Rolled Alloys P076585 W05546 CPA 3-40

HEAT E111248 ORDER 623527/ 08 BOL 0214108 * CERTIFICATION * 09/30/11

SHIP TO:
ROLLED ALLOYS BAR CENTER
711 PHOENIX LAKE AVENUE

STREAMWOOD 601070000

*ok
11/15/11*

----- YOUR ORDER & DATE -----
I03027 9/30/11 CUST# 0773001 CUST TAG#835045701001-08

----- ITEM DESCRIPTION -----
GRADE 316L/316 Ship Condition CONDA
Size 316L RND HRART CONDA 5.2500 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 5700

WO 2023102 Bundles: 1B, 1C

AMS 5648K, 5653G
ASME SA182 E07-E10, Add. 11a
ASME SA479 E07-E10 Alla
ASTM A182 10a
ASTM A276 10
ASTM A479/A479M 11
ASTM A320 11 B8M Class 1
NACE MR0175-03, ISO 15156:03
Federal Spec QQ-S-763F
UNS S31603, AISI 316L
EN 10204 Type 3.1 Document
EN 10272 GR 1.4404 chemistry

----- SPECIFICATIONS -----
SAE AMS-QQ-S-763B
ASME SA193 E10 Alla
ASME SA320 B8M CL1 E10 Alla
ASTM A262 10 Practice A/E
ASTM A314 97
ASTM A484 11
ASTM A193 11 B8M
DFARS 252.225.7014 6/05
UNS S31600, AISI 316
Prodec Quality
RA-53 RAM 316L
Process Annealed 1750F min



----- MECHANICAL & OTHER TESTS -----
Hardness as shipped (155 HB)
Hardness as shipped 80 HRB

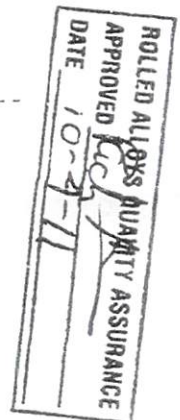
Grain size 7.0
Micro OK
Intergranular corrosion OK

Hardness as tested 00
Tensile strength, KSI (MPa) 87.2 (601)
0.2% Yield Strngth, KSI (MPa) 39.2 (270)
Elongation % in 4D 54.0
Reduction of area % 75.0

----- CHEMICAL COMPOSITION -----
Carbon (C) .018
Phosphorus (P) .031
Silicon (Si) .336
Nickel (Ni) 10.070 ✓
Copper (Cu) .472
Nitrogen (N) .089
Titanium (Ti) .002
Tin (Sn) .010
Vanadium (V) .050
Columbium/
Tantalum (Cb+Ta) .009
Iron (Fe) Balance
Melt Practice EAF
Refining Practice AOD
De-long Ferrite

Manganese (Mn) 1.590
Sulphur (S) .025
Chromium (Cr) 17.130 ✓
Cobalt (Co) .190
Moly (Mo) 2.000 ✓
Columbium (Cb) .009
Aluminum (Al) .005
Boron (B) .005

*5 ✓
JLC*



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

M.F. Marcanio