

OUTOKUMPU

E81436

Certificate of Test

* CERTIFICATION *

HEAT **E81436**

ORDER 0503654/020 SCN D69547 BOL 0151895 TAG 2028074 10/10/08

28918-0P 10/10/08 YOUR ORDER & DATE
CUST# CUST TAG#11403755

GRADE **316L/316** ITEM DESCRIPTION
Size 316L HRART RND BAR **3-3/4 STD** Country of Melt: BRI
Ship Condition A Country of Mfg: SWE
NAFTA Country of Origin is Country of Melt

Total Bundles 1 SON Weight 1815

AMS 5648K, 5653F
ASME SA182 E07 CHEM. ONLY
ASME SA479 E07
ASTM A182-07A CHEMISTRY
ASTM A276 08
ASTM A479 06A
ASTM E112 96
ASTM A193 07 B8M
MIL-S-7720A
TIME SUFF. TO SOLN CARBIDES
HARDNESS TESTED AT MID-RADIUS
UNS S31600/S31603, AISI 316/316L
ESP/UNALLOY-IWRC MS-SS1 REV 3
FREE OF CONT. CARBIDE NETWORK
FREE OF MERCURY CONTAMINATION

SPECIFICATIONS
SAE-AMS QQ-S-763B
ASME SA193 E07
ASME SA320 B8M CL1 EC4 A05
ASTM A262 98 PRACTICE E
ASTM A314 97
ASTM A484 06B
ASTM A320 04 B8M CLASS 1
DIN 50049/EN 10204 3.1B
SOL ANNEAL @ 1900F MIN/WQ
NACE MR0175-03, ISO 15156:2003
FEDERAL SPEC. QQ-S-763F
PRODEC QUALITY
SOLUTION ANNEALED CONDITION
NO WELD REPAIR

MECHANICAL & OTHER TESTS
Test Condition A
Hardness as shipped (161 HBW)
Hardness as shipped 82 HRBS
Grain size 7.0
Micro OK
Intergranular corrosion OK
Macro OK
Tensile strength, KSI (MPa) 86.9 (599)
0.2% Yield Strngth, KSI(MPa) 41.0 (283)
Elongation % in 4D 57.0
Reduction of area % 75.0

CHEMICAL COMPOSITION
Carbon (C) .023
Phosphorus (P) .033
Silicon (Si) .318
Nickel (Ni) 10.060
Copper (Cu) .455
Nitrogen (N) .081
Titanium (Ti) .002
Tin (Sn) .010
Tantalum (Ta) .008
Columbium/
Tantalum (Cb+Ta) .032
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 all applicable specifications, codes, and standards listed above.

Outokumpu
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M. E. Marcano Quality Manager

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