

M46N4BG 12.

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HUNTINGTON ALLOYS CORPORATION  
A Special Metals Company  
HUNTINGTON, WEST VIRGINIA 26705-1771

NOTE: THE RECORDING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHABLE AS A FELONY UNDER FEDERAL STATUTE.

SOUTHERN U.S.

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**CERTIFIED MATERIAL TEST REPORT** No. 72329

|                                                                                                             |                                     |                |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------|
| HA ORDER NO./ITEM<br>100038430 1                                                                            | DATE<br>11/23/08                    | PAGE OF<br>1 2 |
| QUANTITY<br>3895 LBS                                                                                        | INSPECTED BY<br>HA/SMC              |                |
| CHARGE ORDER NO.<br>80506                                                                                   | MARK ORDER NO.<br>80506 1L051751100 |                |
| DESCRIPTION OF MATERIAL SHIPPED<br>MONEL ALLOY 400 HOT FIN RND ROUGH T STR REL<br>11.0000 IN 120-168 IN NOM | REV. 8/08                           |                |

THIS IS TO CERTIFY THAT ALL REQUIRED SAMPLINGS INSPECTIONS AND TESTS HAVE BEEN PERFORMED IN ACCORDANCE WITH THE ORDER AND SPECIFICATION REQUIREMENTS. THE TEST REPORT REPRESENTS THE ACTUAL ATTRIBUTES OF THE MATERIAL FURNISHED AND THE VALUES SHOWN ARE CORRECT AND TRUE. THE MATERIAL DESCRIBED BY THIS CERTIFICATE IS IN FULL COMPLIANCE WITH ALL ORDER AND INSPECTION REQUIREMENTS. WE HEREBY CERTIFY THAT THE BELOW FIGURES ARE IN ACCORDANCE WITH THE SPECIFIED CONTRACT REQUIREMENTS.


\*\*\*\*\*THIS REPORT RELATES ONLY TO THE ITEM(S) TESTED AND MAY NOT BE REPRODUCED EXCEPT IN FULL.\*\*\*\*\*

REFERENCES: ASTM B 164-03 (2008)\ASME SB-164 2007 EDITION 08 ADDENDA\ UNS: N04400  
 ASTM B 564-06 CHEMISTRY ONLY\  
 ASME SB-564 2007 EDITION 08 ADDENDA CHEMISTRY ONLY\  
 US FED QQ-N-281D AM 2 CL A FM 1 MARKING WAIVED.\  
 QUALITY SYSTEM CERTIFICATION: ISO 9001:2000 (ABS-QE CERT. 30125);  
 EN 10 204/DIN 50049 (TYPE 3.1)

| HEAT#   | CHEMICAL ANALYSIS (WT. %) |              |              |               |               |       |       |      |      |
|---------|---------------------------|--------------|--------------|---------------|---------------|-------|-------|------|------|
|         | C<br>P                    | MN<br>PB/PPM | FE<br>SN/PPM | S<br>ZN/PPM   | SI<br>NI+CO   | CU    | NI    | AL   | CO   |
| M46N4BG | 0.15<br>0.010             | 1.04<br>3.1  | 1.57<br>1.6  | <0.001<br>4.8 | 0.28<br>63.11 | 33.79 | 63.10 | 0.05 | 0.01 |

CONVERT PPM TO WT.%, MOVE DECIMAL POINT FOUR PLACES TO THE LEFT.  
 TEST METHOD: AIM + ELECTROSLAG REMELTED

| HEAT#   | LOT | QUANTITY | MECHANICAL PROPERTIES |                      |              |                |            |          |          |
|---------|-----|----------|-----------------------|----------------------|--------------|----------------|------------|----------|----------|
|         |     |          | HARD<br>NESS          | GRAIN<br>SIZE .2XPSI | YIELD<br>PSI | TENSILE<br>PSI | WELG<br>2" | R/A<br>% | DEG<br>F |
| M46N4BG | 12  | 1 PC     | 79.9                  | K 100 X 100          | 0442         | 0802           | 42.0       | 72.0     |          |

HEAT# M46N4BG12  
  
 TRACER# 062925

TENSILE STRENGTH WAS DETERMINED USING A STRESS STRAIN CURVE

MATERIAL HEAT TREAT: STRESS RELIEVED 1100 DEG.F HELD FOR 1 HOUR. AIR COOLED.

WELDED REPAIR HAS BEEN PERFORMED ON THIS MATERIAL.

COUNTRY OF ORIGIN: MELTED AND MANUFACTURED IN THE USA

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MECHANICAL AND DIMENSIONAL EXAMINATION SATISFACTORY.  
MATERIAL, WHEN SHIPPED, IS FREE FROM CONTAMINATION BY MERCURY, RADIUM, ALPHA SOURCE, & LOW MELTING ELEMENTS.  
CHEMICAL ANALYSIS AS REQUIRED FOR CARBON, SULFUR, NITROGEN OR OXYGEN IS PERFORMED BY COMBUSTION TECHNIQUES.  
OTHER REPORTED ELEMENTS ARE ANALYZED BY X-RAY AND/OR EMISSION SPECTROSCOPY."  
QUALITY SYSTEM MEETS REQUIREMENTS OF DIRECTIVE 97/23/EC (PRESSURE EQUIPMENT DIRECTIVE),  
ANNEX 1, CHAPTER 4.3 PER ABS GROUP LTD CERTIFICATE 41734 (EXPIRES JULY 31, 2011)."

AUTHORIZED QUALITY CERTIFICATION REPRESENTATIVES :  
BOLEN, P.D. CUSTER, M.A. MORRISON, P. WAUGH *J. D. Custer*

HEAT# M46N48G12  
  
TRACER# 062925