



SERIAL NUMBER: N-219 COOK DATE: \_\_\_\_\_

MOLD SIZE 5.915 X 4.780 BY RB

ORDER DATE 8/11/18 SHIP DATE: 8/17/18 PO 5R3982

SIZE 5 7/8 X 4 3/4 TYPE XDS FOR SLB

THREAD 2 3/8 PAC OTHER 30 deg taper to 12" long F/N

NOTES 51" Swallow

MATRIX (H) 1874 WEIGHT \_\_\_\_\_

MATRIX (S) 2022 WEIGHT \_\_\_\_\_

BINDER 23679 WEIGHT \_\_\_\_\_

BLANK MM 1010 4506 TJ D1712717

BILLET \_\_\_\_\_ TUBE \_\_\_\_\_

WELD BY AH MPI BY AH MPI PIC AH

THREAD GAGE \_\_\_\_\_ STAND OFF .620

FINAL DIAMOND GRIND SIZE 5 7/8 X 4.3/4

LENGTH TO WELD \_\_\_\_\_

FINISHED PIC TAKEN BY \_\_\_\_\_ SHIPPED BY AH DATE 8-21-18

SHORT BIT & TOOL CO  
225 GOLD STREET  
GARLAND TX 75042  
972-205-1011  
main@shortbits.com



# Certificate of Conformance

| Serial Number                                     | Size            | Type          | Steel or Matrix           | Shank Diameter | Bore |
|---|-----------------|---------------|---------------------------|----------------|------|
| N-219   | 5.875" x 4.750" | XDS           | Matrix                    |                |      |
| <b>Component</b>                                  |                 |               |                           |                |      |
|   | <b>Material</b> | <b>Vender</b> | <b>Lot or Heat Number</b> |                |      |
| Blank   | 8620 Steel      | RHW           | MM10104506                |                |      |
| Hard Powder                                       | WC              | HMP           | 1874                      |                |      |
| Soft Capping Powder                               | W2              | HWP           | 2022                      |                |      |
| Tool Joint  | 4140 Steel      | RHW           | D1712717                  |                |      |
| MIG Weld  |                 |               |                           |                |      |
| WP Tube   |                 |               |                           |                |      |
| <b>Inspection</b>                                 |                 |               |                           |                |      |
| Diamond Grinding To Size                          | 5.875" x 4.750" |               |                           |                |      |
| Weld MPI  | Alan            |               |                           |                |      |
| Thread Gaging                                     | .620" stand-off | 2 3/8 PAC     |                           |                |      |
| Signed By: <i>P. Beegh</i> date: <i>8-22-2018</i> |                 |               |                           |                |      |

|                  |                                   |
|------------------|-----------------------------------|
| Document Number: | F-Q-018                           |
| Revision:        | Orig.                             |
| Date of Origin:  | 8/12/2012                         |
| Manual:          | P-Q-001                           |
| Page:            | PAGE 1 OF 1                       |
| Title:           | MATERIAL PROPERTIES CERTIFICATION |



|                         |                        |
|-------------------------|------------------------|
| <b>CUSTOMER:</b>        | Short Bits             |
| <b>CUSTOMER PO#:</b>    | VICKIE E MAIL 04-12-18 |
| <b>ITEM ID:</b>         | PWMP010                |
| <b>ITEM DESCRIPTION</b> | MP MATRIX POWDER H     |
| <b>ITEM LOT #</b>       | MPW1874                |
| <b>DATE</b>             | 4/16/2018              |
| <b>WEIGHT</b>           | 100 lb.                |

**CHEMICAL COMPOSITION  
(Weight Percent)**

| Element           | Minimum | Maximum | RESULT  |
|-------------------|---------|---------|---------|
| Total Carbon (Tc) | 5.4     | 5.90    | 5.65    |
| Free Carbon (Fc)  | -       | 0.04    | 0.03    |
| Iron (Fe)         | -       | 1.00    | 0.02    |
| Nickel (Ni)       | 1.5     | 2.50    | 1.70    |
| Tungsten (T)      |         |         | Balance |

**PRODUCT SIZING  
(Weight Percent)**

| Sieve                              | Minimum | Maximum | RESULT |
|------------------------------------|---------|---------|--------|
| (U.S. Standard Mesh per ASTM B214) |         |         |        |
| +80                                | 4.0     | 8.0     | 6.7    |
| -80 + 120                          | 13.0    | 17.0    | 15.5   |
| -120+ 170                          | 13.0    | 17.0    | 15.6   |
| -170 + 230                         | 13.0    | 17.0    | 15.4   |
| -230 + 325                         | 13.0    | 17.0    | 14.5   |
| -325                               | 29.00   | 37.00   | 32.1   |

**PHYSICAL PROPERTIES**

| Testing Procedure                  | Minimum | Maximum   | RESULT |
|------------------------------------|---------|-----------|--------|
| Apparent Density ASTM B212 (g/cc)  | 7.2     | 8.1       | 7.5    |
| Tap Density ASTM B527 (g/cc)       | 9.2     | 10.4      | 10.1   |
| Hall Flow Rate ASTM B213 (sec/50g) |         | Must Flow | 13.4   |

|                  |                                   |
|------------------|-----------------------------------|
| Document Number: | F-Q-018                           |
| Revision:        | Orig.                             |
| Date of Origin:  | 8/12/2012                         |
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| Title:           | MATERIAL PROPERTIES CERTIFICATION |



|                  |                                  |
|------------------|----------------------------------|
| CUSTOMER:        | SHORT BITS                       |
| CUSTOMER PO#:    | 6000959                          |
| ITEM ID:         | PWCTPM002                        |
| ITEM DESCRIPTION | CTPM CRYSTALLINE W 80 X 325 MESH |
| ITEM LOT #       | MPW2022                          |
| DATE             | 7/13/18                          |
| WEIGHT           | 100.0 LB.                        |

**CHEMICAL COMPOSITION  
(Weight Percent)**

| Element      | Minimum | Maximum | RESULT |
|--------------|---------|---------|--------|
| Tungsten (T) |         |         | 99.90  |

**PRODUCT SIZING  
(Weight Percent)**

| Sieve                              | Minimum | Maximum | RESULT |
|------------------------------------|---------|---------|--------|
| (U.S. Standard Mesh per ASTM B214) |         |         |        |
| +80                                | -       | 5.0     | 0.9    |
| -80 + 325                          | -       | -       | 98.4   |
| -325                               | -       | 10.00   | 0.6    |

**PHYSICAL PROPERTIES**

| Testing Procedure                  | Minimum | Maximum   | RESULT |
|------------------------------------|---------|-----------|--------|
| Apparent Density ASTM B212 (g/cc)  | 7.2     | 8.1       | 7.7    |
| Tap Density ASTM B527 (g/cc)       | 9.2     | 10.4      | 10.4   |
| Hall Flow Rate ASTM B213 (sec/50g) |         | Must Flow | 11.5   |
|                                    |         |           | -      |
|                                    |         |           | -      |



330 Belmont Avenue, Brooklyn, NY 11207-4000 U.S.A  
tel:+1.718.342.4900 fax:+1.718.342.0175

## Certificate of Analysis

July 27, 2018

To: Short Bits & Tool  
225 Gold Street  
Garland, TX 750426648 USA

Customer Order No: Phone/Vicki

Customer ID: SHORTC

Sales Order No: 31363

Material: 4483D

BELMONT *Virgin Grade Binder Alloy*

Shape: 1/2" x 1/2" x 3/4" Tumbled Sheared Pcs.

Packaging: 250 Lb. Drums

Lot: 23679

|                |        |
|----------------|--------|
| Copper (Cu)    | 47.68  |
| Manganese (Mn) | 23.60  |
| Nickel (Ni)    | 20.06  |
| Zinc (Zn)      | 8.18   |
| Boron (B)      | 0.19   |
| Iron (Fe)      | 0.07   |
| Silicon (Si)   | 0.17   |
| Lead (Pb)      | < 0.05 |
| Tin (Sn)       | < 0.05 |

BELMONT METALS, INC.

Nasir Naseer

QC Administrat

BELMONT



METALS

1-31-11

507038

HT-mm 10104506

R 3516 49

**NUCOR**  
NUCOR STEEL MEMPHIS, INC.

Mill Certification  
1/14/2011

3601 Paul R Lowry Rd  
MEMPHIS, TN 38109  
(901) 786-5900  
Fax: (901) 786-5901

Sold To:

Ship To:

|               |                                 |                 |                 |
|---------------|---------------------------------|-----------------|-----------------|
| Customer P.O. | 207261                          | Sales Order     | 107851.1        |
| Product Group | Special Bar Quality             | Part Number     | 30006000240MK80 |
| Grade         | ASTM A322 8620/8620H; A29, A304 | Lot ID          | MM1010450601    |
| Size          | 6" (6.0000) Round               | Heat ID         | MM10104506      |
| Product       | 6" Round 20' 8620-C1R6          | B.L. Number     | G1-214104       |
| Description   | 8620-C1R6                       | Load Number     | G1-106825       |
| Customer Spec |                                 | Customer Part # |                 |

I hereby certify that the material described herein has been manufactured in accordance with the specifications and standards listed above and that it satisfies those requirements.

|        |        |        |        |         |        |         |       |       |        |        |         |
|--------|--------|--------|--------|---------|--------|---------|-------|-------|--------|--------|---------|
| C      | Mn     | P      | S      | Si      | Cu     | Ni      | Cr    | Mo    | V      | Al     | B       |
| 0.21%  | 0.85%  | 0.011% | 0.023% | 0.21%   | 0.23%  | 0.42%   | 0.46% | 0.24% | 0.004% | 0.022% | 0.0002% |
| Sn     | Ti     | Cb     | Co     | Ca      | Pb     | H       |       |       |        |        |         |
| 0.008% | 0.002% | 0.002% | 0.009% | 0.0005% | 0.000% | 1.1 ppm |       |       |        |        |         |

DI value: 2.15

Fine Grain 5 or finer

Simulated Hardenability Band

|    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| J1 | J2 | J3 | J4 | J5 | J6 | J7 | J8 | J9 | J10 | J11 | J12 | J13 | J14 | J15 | J16 | J18 | J20 | J22 | J24 | J26 | J28 | J30 | J32 |
| 45 | 45 | 42 | 38 | 31 | 27 | 25 | 24 | 23 | 22  | 21  | 20  | 20  | 19  | 19  | 18  | 18  | 17  | 17  | 16  | 16  | 15  | 15  | 15  |

Brinell: 180.000bhn

Reduction Ratio 5.1:1

ASTM E45 Method A

Sulfides: T: 0.5 H: 0.5 Alumina: T: 0.0 H: 0.0 Silicates: T: 0.0 H: 0.0 Globular: T: 1.0 H: 1.0

Specification Comments: EAF, LMF, VTD, CONTINUOUS CAST FULLY KILLED CAPABLE OF MEETING E381 C252R2 CAPABLE OF MEETING E45: A-THIN 2.5, A-HEAVY 2.0 B-THIN 2.0, B-HEAVY 1.5 C-THIN 2.0, C-HEAVY 1.5 D-THIN 2.0, D-HEAVY 1.5

- All manufacturing processes, including melting have been performed in the U.S.A.
- No mercury, mercury compounds or mercury containing devices came into contact with this product
- Welding or weld repair was not performed on this material.
- This material conforms to the specifications described on this document and may not be reproduced except in full, without written approval of Nucor Corporation.
- This product is NAFTA certified under Paragraph "B" of the NAFTA rule of origin.
- Material is Free of Radioactive Contamination.
- This document is in compliance with EN 10204 "type 3.1"

*Todd K. Evilsizer*

Todd Evilsizer  
Division Metallurgist

Page 3 of 5

8" 4140

D1712717



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KALİTE BELGESİ QUALITY CERTIFICATE / MILL TEST CERTIFICATE



Customer: SEBA TUBULAR LTD., Date: 01.08.2017, Heat no: D1712717, Dimension: RD 8.00 inch, Your Order No: 40290-17-259/B, Our Order No: 1200005192 / 000010, Casting type: Ingot Cast, Quality: SAE 4140 QT-SR, Weight: 24,969 LB / 11,335 KG, Number of bars: 15, Doc. Norm / Number: EN 10204/3.1 - 1707501, Reduction Ratio: 12.8 /1

Product: PRIME NEWLY PRODUCED ROUND STEEL BARS, HOT ROLLED QUENCHED & TEMPERED AND STRESS-RELIEVED, ACC. TO RHW SPEC. 4140 HT REV.05 (JAN 2016) AND YPK 17-032, LATEST EDITIONS OF ASTM A29, A304, A322, A370, A388, A751, E45, E312, E709, AMS 2750, API 6A PSL 3. WE CERTIFY THAT THE MATERIAL IS AN ALLOY STEEL / ORDER NO: 40290, Electric Arc Furnace(EAF), Ladle Furnace(LF), Vacuum Degassing(VD)

Ladle Chemical Composition (%) table with columns C, Si, Mn, P, S, Cr, Mo, Ni, Al, Cu, Sn, V, Nb, O, H and values for Min, Max, and Sample.

Product Chemical Composition (%) table with columns C, Si, Mn, P, S, Cr, Mo, Ni, Al, Cu, Sn, V, Nb, O, H and values for Sample-1 and Sample-2.

Jominy - Inch table with columns 1.0 inch, 4.0 inch, 8.0 inch, 16.0 inch, 28.0 inch and values for Min, Max, and Result-1.

Hardness table with columns Customer Req. and Asil Çelik Result, and rows for Min, Max, and Unit (HB, HRC).

Mechanical Properties (Required)

Mechanical Properties table with columns Test, Min, Max, Unit, Test Loc., Temp., Direction, Notch Type, and Result-1. Includes Yield strength, Tensile Strength, Elongation, Reduction, Shear, Lateral Expansion, and Impact Strength tests.

Metallography Tests (Required)

Metallography Tests table with columns Test, Min, Max, Unit, Standard, and Result-1. Includes Austenite Grain Size.

Special Chemical Analysis Requests

Special Chemical Analysis Requests table with columns Formulas, Min, Max, Unit, and Value. Includes DI (ASTM A255-10).

Heat Treatment Parameters

QUENCH TEMPERATURES AT START & FINISH: 104/120 °F, COOLING MEDIA: AIR / QUENCH MEDIA: POLYMER

Heat Treatment Parameters table with columns AUSTENITIZING TEMP. / TIME, TEMPERING TEMP. / TIME, and STRESS RELIEVE TEMP. / TIME, and values for 1580 °F, 1166 °F, 932 °F and times of 4.50, 6.00, 4.50 HOURS.

MECHANICAL PROPERTIES TAKEN FROM PROLONGATION.

LENGTH OF PROLONGATION : 20 cm / TENSILE SPECIMEN : RND. 12.5 mm, GAGE LENGTH (IN) : 2 inch / FBH SIZE MAX. 5.2 mm & RESULTS WERE OK, METHOD OF MONITORING TEMPERATURE : FURNACE TYPE THERMOCOUPLE / FURNACE CALIBRATION : AMS 2750, ULTRASONIC TESTING 100% ASTM A-388/SA 388-07, AFTER Q&T+SR ACCEPTANCE CRITERIA, API 6A/ISO 10423 PSL 3 & 100% MIX-LIP CONTROLLED & SURFACE CRACK TESTED & RESULTS WERE OK, \*FREE FROM RADIOACTIVITY & FREE FROM MERCURY. NO WELD REPAIR PERFORMED\*

\*WE HEREBY CERTIFY, MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE TERMS OF ORDER CONTRACT\*

Approved by: Mert ÜLKER

33 23 760-44 (1)

Satral / Central, Tel: +90 224 280 61 00, Faks: +90 224 280 62 00, Fabrika / Head Office & Plant, Gemig Köyü Meykil 16800 Osmangazi / BURSA

İç Satış / Domestic Sales, +90 262 781 60 00, +90 262 781 60 05, Vergi Dairesi: Büyük Mektepler Vergi Dairesi Başkanlığı, Vergi No: 0860052518, Ticaret Sicil: 18917

Dis Satış / Export, +90 262 781 60 00, +90 262 781 60 05

