



SERIAL NUMBER: T-281 T-282 COOK DATE: June 23

MOLD SIZE _____ BY _____ PO Harris #4005332

ORDER DATE 24 JUN 23 SHIP DATE: 29 JUN 23

FOR: WFR

SIZE 2.7 x 1.875 TYPE X05-5

THREAD _____ OTHER Head Only

MATRIX (H) SE 35519 WEIGHT _____

MATRIX (S) 35281 WEIGHT _____

BINDER M0000311271 WEIGHT _____

BLANK A 186643 TJ _____

BILLET _____ TUBE _____

WELD _____ MPI _____ MPI PIC _____ BRAZE _____

THREAD GAGE _____ STAND OFF _____

FINAL DIAMOND GRIND SIZE 2.7 x 1.875

LENGTH TO WELD _____

FINISHED PIC TAKEN BY Ro CRATED BY Ro DATE: 6/29/23

International _____ domestic _____

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



Certificate of Conformance

Serial Number	Size	Type	Steel or Matrix	Shank Diameter	Bore
T-281, T-282	2.7 x 1.875	XDS-S	Matrix		

Component	Material	Vender	Lot or Heat Number
Blank	8620	RHW	A186643
Hard Powder	WC	SURFACE	35519
Soft Capping Powder	W2	SURFACE	35281
Tool Joint			
MIG Weld			
Tubing			

Inspection	
Diamond Grinding To Size	
Weld MPI	
Thread Gaging	HEAD ONLY

Signed By: *P. Beatty* date: *6/30/2023*



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

June 12, 2023

Customer Order No: VERBAL-VICKIE
Customer ID: SHORTC
Customer Name: Short Bits & Tool
Sales Order No: 45568

Certificate of Analysis

Item No: 4483D

Virgin Grade Binder Alloy

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

311271

CU	47.11
MN	24.38
NI	20.02
ZN	8.14
B	.11
SI	.16
FE	.02
PB	<.05
SN	.01

Pam

BELMONT METALS, INC.

Nasir Naseer

QC Administrator





Surface Engineering Powders Certified Material Test Report

Company Short Bits P.O.#: Vickie
 Alloy Type: PWMP010 Size: 80/325 Mesh: 80/325 Micron: 180/45um
 Description MATRIX POWDER H Quantity: 100lbs
 Specification N/A Type/Class: N/A
 Heat Number SE-35519

Chemical Analysis Actual: x Nominal: _____

The data contained herein were obtained from samples considered to be representative of the products in the subject shipment and are believed to be reliable. All operations performed comply with the material specification and the purchase order.

Element Concentrations (Weight Percent)

Al: _____	B: _____	Be: _____	C: <u>5.72</u>	Co: _____	Cr: _____	Cu: _____	Fe: <u>0.19</u>
Mn: _____	Mo: _____	N2: _____	Nb: _____	Ni: <u>1.99</u>	O2: _____	P: _____	S: _____
Si: _____	Ta: _____	Ti: _____	V: _____	W: <u>BAL</u>	Wc: _____	TAO: <u><0.5</u>	
Oth: _____	F.C: <u>0.03</u>	Analytical Process(es): _____					

Sampling Procedure / Spec: ASTM B215-10 Hall Flow / Spec: ASTM B213-13	Powder Mesh / Spec: ASTM B214-07-2011 Apparent Density / Spec: ASTM B212-13
---	--

Physical Properties

Material Hardness Scale: Rc: N/A HB: _____ Hv: _____ Hk: _____

Hall Flow 9.90 Sec./50g Apparent Density: 8.15 g/cm³

Particle Size Distribution: **Size Microns(um)/U.S. Sieve (mesh)**

180/80: <u>5.50</u>	150/100: _____	125/120: <u>15.20</u>	106/140: _____
90/170: <u>14.25</u>	75/200: _____	63/230: <u>16.75</u>	53/270: _____
45/325: <u>15.25</u>	38/400: <u>33.05</u>	32/450: _____	25/500: _____
20/635: _____	15/800: _____	+10: _____	+5: _____

Other: _____

Surface Engineering Alloy Company hereby certifies the above listed material meets all requirements of the above listed specifications in addition to the confirmation that during the manufacturing process, testing, and inspection, the product was completely void of contact with the element Mercury or any of its compounds. In addition, this certification validates that all test results and operations performed by Surface Engineering Alloy Company, or its subcontractors, are in compliance with the material specification and the specific applicable material requirements of ASME SFA 5.21, of ASME Section II. The requirements of Federal Law, Title 18, Chapter 47 apply to this order and to sub-tier suppliers.

6/15/2023

Reporting Officer
Ian Oberholtzer

Date

SM-1000-CERT-P Rev A 4/18/2023

2895 46th Ave North
St. Petersburg, FL
Main Office: 727.528.7998
www.surfaceengineering.com

Surface Engineering Powders
Certified Material Test Report

Company Short Bits P.O.#: Vickie
 Alloy Type: PWCTPM002 Size: 80/325 Mesh: 80/325 Micron: 180/45um
 Description CTPM CRYSTALLINE W 80 X 325 MESH Quantity: 50lbs
 Specification N/A Type/Class: N/A
 Heat Number SE-35281

Chemical Analysis Actual: x Nominal: _____

The data contained herein were obtained from samples considered to be representative of the products in the subject shipment and are believed to be reliable. All operations performed comply with the material specification and the purchase order.

Element Concentrations (Weight Percent)

Al: _____ B: _____ Be: _____ C: _____ Co: _____ Cr: _____ Cu: _____ Fe: _____
 Mn: _____ Mo: _____ N2: _____ Nb: _____ Ni: _____ O2: _____ P: _____ S: _____
 Si: _____ Ta: _____ Ti: _____ V: _____ W: 100% Wc: _____ TAO: _____
 Oth: _____ Analytical Process(es): _____

Sampling Procedure / Spec: ASTM B215-10
Hall Flow / Spec: ASTM B213-13

Powder Mesh / Spec: ASTM B214-07-2011
Apparent Density / Spec: ASTM B212-13

Physical Properties

Material Hardness Scale: Rc: N/A HB: _____ Hv: _____ Hk: _____

Hall Flow 10 **Sec./50g Apparent Density: 8.3 g/cm3**

Particle Size Distribution: Size Microns(um)/U.S. Sieve (mesh)

180/80: 1.00	150/100: _____	125/120: _____	106/140: _____
90/170: _____	75/200: 60.80	63/230: _____	53/270: _____
45/325: 31.30	38/400: 6.80	32/450: _____	25/500: _____
20/635: _____	15/800: _____	+10: _____	+5: _____
Other: _____			

Surface Engineering Alloy Company hereby certifies the above listed material meets all requirements of the above listed specifications in addition to the confirmation that during the manufacturing process, testing, and inspection, the product was completely void of contact with the element Mercury or any of its compounds. In addition, this certification validates that all test results and operations performed by Surface Engineering Alloy Company, or its subcontractors, are in compliance with the material specification and the specific applicable material requirements of ASME SFA 5.21, of ASME Section II. The requirements of Federal Law, Title 18, Chapter 47 apply to this order and to sub-tier suppliers.



Reporting Officer
Ian Oberholtzer

4/12/2023

Date

Certified Material Test Report

Cert #: 305970	Mill Order: 1829293	Heat #: A186643	Issued: 12/13/2018 20:43:21
Work Order: 279207	Sales Order: 213264-1	Customer: Marco Steel and Aluminum	PO #: 106119-1
Load #: 320078	Reference #:	Reference Desc:	End Use:
Size: 3"	Shape: Round	Grade: 8620	Length: 19'9"
Grain Practice: AI Fine Grain (5-8) per ASTM A29		Reduction Ratio: 20.5 to 1	Disposition: Rolled Prime

Ladle Chemistry Analysis (ASTM A29)

C	Mn	P	S	Si	Al	Cu	Ni	Cr	Mo	Sn	N	V	Cb	B	Ca	W	Ti	DI
0.21	0.82	0.008	0.023	0.23	0.031	0.21	0.46	0.51	0.17	0.009	0.0086	0.002	0.001	0.0003	0.0005	0.001	0.001	1.97
Pb	Co	As	Sb	Zr	Bi	H(ppm)	O(ppm)	Coq	J-Factor									
0.000	0.007	0.004	0.004	0.000	0.000	1.5		0.53	178									

Product Check Analysis (ASTM A29)

	C	Mn	P	S	Si	Al	Cu	Ni	Cr	Mo	Sn	N	V	Cb	Ti	B	Ca	O
Front																		
Back																		

Jominy (ASTM A255)

	J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J12	J14	J16	J18	J20	J24	J28	J32
Calc'd Standard	45	44	41	34	29	25	24	23	22	21	19	18	17	17	16	15	14	14
Calc'd Metric	1.5	3	5	7	9	11	13	15	20	25	30	35	40	45	50			
	J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J12	J14	J16	J18	J20	J24	J28	J32
Front																		
Back																		

Microcleanliness (ASTM E45)

Method A								Method C (SAE J422)			Method E		Microcleanliness (DIN 50602)			
AT	AH	BT	BH	CT	CH	DT	DH	S	O	SAM "B"	SAM "D"	K	M			
								S	O	SAM "B"	SAM "D"	S	O	Tot	Tot	

Decarb		Grainsize		Macrostructure (ASTM E381)			Magnetic Particle Inspection	
Depth	% of Diameter	Austenitic	Ferritic	S	R	C	Frequency	Severity

Mechanical Properties (ASTM A370)

Tensile Properties					Hardness	
Tensile Strength	0.2% Yield Strength	% Elong (2")	% ROA	0.35% EUL Yield Strength	(MR)	(Surf)

Steel Dynamics - Engineered Bar/Products has a quality system in place which has been certified ISO 9001:2015 compliant, including PED certification.

Comments/Specs

ASTM A322-13

Marco Steel & Alum, Inc.
Certifies that this is a true
copy of the original
Mill cert on file
By: [Signature]
Date: 12-13-18
PO#: 106119
Vendor: 106119

Condition: As-Rolled, Hot-Rolled

I hereby certify that the content of this report is correct and accurate, and that all tests and operations performed on this material were in compliance with applicable material specifications and purchaser designated requirements.

[Signature]
Jason Sawa - Rolling Mill Metallurgist (ES)

Any alteration to this report voids Steel Dynamic's warranting of results. No weld repair has been performed on this material. This material is not radioactive and has not been exposed to radioactivity while under the control of Steel Dynamics. This material has not been exposed to mercury while under the control of Steel Dynamics. Unless otherwise noted, this material was melted, continually cast, and rolled in the USA; w/ all testing performed by Steel Dynamics.



2.7X1.875

XDSS

T282

MADE IN USA

