



**J72290**  
**PEERLESS AEROSPACE FASTENER CORP.**  
141 Executive Blvd., PO Box 710, Farmingdale, NY 11735-0710  
Sales (631) 420-8200 Accounting (631) 962-2211  
Expediting (631) 962-2214 Fax (631) 420-9617  
Quality (631) 962-2217 Email: sales@pafcorp.com



**PACKING SLIP / COMM. INV.**

SALES NUMBER	SNYD7V09
INVOICE NUMBER	INY2ZGY5
INVOICE DATE	04/15/21
SHIP VIA	FED GROUND
WAYBILL	969044297358
CARTONS	1
WEIGHT (LBS)	34.00
PAGE	1 of 1

**SHIP TO:**

WENCOR, LLC  
416 DIVIDEND DRIVE  
PEACHTREE CITY, GA 30269

**SOLD TO:**

WENCOR, LLC\*  
416 DIVIDEND DRIVE  
PEACHTREE, GA 30269

WENCOR, LLC  
RECEIVED

APR 29 2021

CUSTOMER CODE W258	BUYER		CUSTOMER PO NUMBER RV0BTATFS		SHIPPING TERMS FARMINGDALE		
SALES REP MICHAEL FUSCO			EMAIL MFUSCO@PAFCORP.COM		TERMS NET 30 DAYS		
LINE #	ORDER QTY	SHIP QTY	BALANCE	UM	CUSTOMER PART / PAF PART	PRICE (\$)	TOTAL
001	12,500	12,500	0	EA	CR3213-4-3 CHERRYMAX RIVETS ECCN: EAR99 SCHB: 7318.23.0000 MFG: CHERRY AEROSPACE CAGE: 11815 COO: USA LOT: 88682909 DESC: A/C FASTENERS		
<p>** This document serves as our commercial invoice for export purposes **</p> <p>These items are controlled by the U.S. government and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. government or as otherwise authorized by U.S. law and regulations. Original test report certifications/statements are on file.</p> <p>Peerless general terms and conditions of sale, applicable to this order, are either attached or incorporated by reference and are available on our website at the following location: <a href="http://www.pafcorp.com/quality/SERFO007.pdf">http://www.pafcorp.com/quality/SERFO007.pdf</a></p>							
TOTAL							

ALL PRICES IN USD

Sealed and shipped by  
VICTOR ROSALES

Cage: 2G586

The quality system of this facility has been registered to the ISO AS9100 and AS9120 Standards.

The customer's use of a part number/description or our recital of a customer's designated part number/description does not of itself commit Peerless to supply parts of a specific manufacturer.

**CERTIFICATE OF CONFORMANCE**

It is hereby certified that all articles in the above shipment and in the quantities as called for in the above contractor's purchase order are in conformance with the requirements, specifications and drawings applicable to that order.

By:

Paul Feraca  
Quality Assurance Manager

SHI-FO-007, REV: C

- Peerless BAE#: BAE/AG/20403/MMA
- Peerless AirbusUK#: 91011
- Applicable Terms and Conditions Document SER-FO-007 (attached and available at [www.pafcorp.com](http://www.pafcorp.com)) are incorporated as part of this document.
- Shipment Country of Origin: USA

J72290



**CHERRY®**  
**AEROSPACE**  
SPS Fastener Division, a PCC Company

Cherry Aerospace  
1224 East Warner Avenue  
Santa Ana, CA 92705-5514  
USA



**PACKING LIST**

Order No: S0419297  
Order Date: 07/31/19  
Print Date: 03/25/21

Page: 1



Sold-To: 10016384

Ship-To: 10016384

S O L D T O	PEERLESS AEROSPACE FAST
	141 EXECUTIVE BLVD.
	PO BOX 710
	FARMINGDALE, NY 11735
	USA

S H I P T O	PEERLESS AEROSPACE FAST
	141 EXECUTIVE BLVD.
	PO BOX 710
	FARMINGDALE, NY 11735
	USA

Salesperson (s):113

Purchase Order: PURC291E

Credit Terms: NET 60  
Net 60

Ship Via: YRC  
FOB: Origin

**Remarks:**

Unless otherwise specified on this order, Cherry will manufacture and certify parts to the part number's latest revision. Latest revisions are shown at <https://bizpartner.cherryaerospace.com/partrevisions.htm> under "Part Number Revision List"

\*\*\*\*\* EAR99 \*\*\*\*\*

BRITISH AEROSPACE APPROVAL# BAe/AG/30158/MAA to BAe/AG/QC/SC1 PART 3ED FOR AIRBUS APPROVAL# 30114

\*\*\* ALL PARTS MUST MEET DFAR CLAUSE 252.225-7009 PREFERENCE FOR DOMESTIC SPECIALTY METALS \*\*\*

Shipping Weight <300lbs - Ship UPSGRND ACCT# 148984  
>300lbs - Ship via YRC ACCT 1325731

\*\*\*\*\* PUR-F-006 REV. I - MATERIAL PO REQ. APPLIES \*\*\*\*\*

International shipments to PAF (outside USA):

Shipping weight <= 150 lbs. Ship via DHL Acct # 968195877

Shipping weight > 150 Contact PAF for instructions by emailing

SHIPPING@PAFCORP.COM

Include HTS code(s) and description of the products

AIR PRIORITY (Only if specified/authorized):

Federal Express (e.g., P1, P2, Economy) Acct # 896802941

\*\* DO NOT SHIP LOTS LESS THAN 100PCS OR IN INCREMENTS OF LESS THAN 100

UNLESS SPECIFICALLY ALLOWED IN THE SPECIAL INSTRUCTIONS, OR ORDER QTY IS

<100PCS. \*\*



Ln	Item Number	Site T Location/Lot/Serial	Qty Open Qty to Ship	Promised	
				UM	Shipped
3	CR3213-4-03	1600		EA	02/01/21
	Customer Item: NAS9301BNS-4-03				
	ASNA0078A403				
	B0207005-4-03				

**TEST REPORTS ENCLOSED DO NOT DESTROY**

These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to US law is prohibited

**CERTIFICATION**

**ATTENTION: PURCHASING DEPARTMENT**

The material and/or parts we are furnishing in this shipment (as shown above) on the subject Purchase Order conform to the order and applicable specifications. Evidence that the material and/or parts meet the specifications and results of all tests for each lot affected will be in our files and will be available for your inspection at any reasonable time. Cherry certifies that these products are free from mercury contamination. Mercury bearing instruments and equipment which might have caused mercury contamination were not used in the manufacture, fabrication, and assembly or testing of any material furnished under this order.

Quality Assurance Representative

Signed

SIM NGUYEN



J72290



**CHERRY®**  
**AEROSPACE**  
 SPS Fastener Division, a PCC Company

Cherry Aerospace  
 1224 East Warner Avenue  
 Santa Ana, CA 92705-5514  
 USA



**PACKING LIST**

Order No: S0419297  
 Order Date: 07/31/19  
 Print Date: 03/25/21

Page: 12



Sold-To: 10016384

Ship-To: 10016384

**SOLD TO**  
 PEERLESS AEROSPACE FAST  
 141 EXECUTIVE BLVD.  
 PO BOX 710  
 FARMINGDALE, NY 11735  
 USA

**SHIP TO**  
 PEERLESS AEROSPACE FAST  
 141 EXECUTIVE BLVD.  
 PO BOX 710  
 FARMINGDALE, NY 11735  
 USA

Ln	Item Number	Site T Location Lot/Serial	Qty Open Qty to Ship	UM	Promised Shipped
3	CR3213-4-03 CAN4307884-3 MBBN3012L3203 NAS9301B-4-03				
		EZL-A08 88682910	31100.0	( )	
		EZL-A09 88648110	30900.0	( )	
		EZL-A33 88682911	9600.0	( )	
		G0904 88682909	32600.0	( )	



**TEST REPORTS ENCLOSED**  
**DO NOT DESTROY**

These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to US law is prohibited

**CERTIFICATION**


The material and/or parts we are furnishing in this shipment (as shown above) on the subject Purchase Order conform to the order and applicable specifications. Evidence that the material and/or parts meet the specifications and results of all tests for each lot affected will be in our files and will be available for your inspection at any reasonable time. Cherry certifies that these products are free from mercury contamination. Mercury bearing instruments and equipment which might have caused mercury contamination were not used in the manufacture, fabrication, and assembly or testing of any material furnished under this order.

**ATTENTION: PURCHASING DEPARTMENT**

Quality Assurance Representative

Signed

SIM NGUYEN

**J72290** 



**CHERRY AEROSPACE**  
1224 East Warner Avenue  
Santa Ana, CA 92707-0157



Chemical Processing  
Heat Treating  
ISO/IEC 17025  
Material Testing Lab

## Final Inspection & Test Report CherryMax® Rivet

An ISO9001 and AS9100 registered company. OASIS #6111041606

Part Numbers CR3213-4-03	Rev AE	Proc. Spec. PS-CMR-3000	Rev R	Lot I.D. No.: <b>88682909</b>
** See 2nd Page for the Customer Parts				Lot Size: <b>32,642</b>
				MFG. Date: <b>March 24, 2021</b>

### ASSEMBLY DATA

TYPE	ID #	CERT #	MATERIAL	FINISH	LUBE
Rivet	88646967	A86953	QQ-A-430/5056	MIL-C-5541 CLEAR CL1A	None
Stern	88628581	A89169	AMS6322 / 8740ST	QQ-P-416/T2CL2/CAD PL	None
Collar	00000000	A90249	A-286 / AMS 5731, 5737	Passivate per AMS2700	None

W.O. #: 5705999

Final Lube: Refined Wax

### QUALITY CONFORMANCE/ACCEPTANCE RESULTS

MIN REQ'D SAMPLE SIZE SPECS	INSTALLED SHEAR		TENSION		SPINDLE RETENTION		DISASSEMBLY
	584		285		125		10
	5	N/A	5	N/A	5	N/A	5
	C-N	B	C-N	B	C-N	B	C-N
RESULTS	909		348		288		62
	776		357		281		64
	779		320		296		60
	776		346		280		62
	774		305		288		63


C=CR N=NAS  
M=MIL B=BAC  
LOAD VALUES  
IN POUND

<u>PCS.</u>	<u>ITEM</u>	<u>STATUS</u>	<u>PCS.</u>	<u>ITEM</u>	<u>STATUS</u>
20	EXAMINATION	PASS	20	INSTALLATION (Min and Max Grips)	PASS



### Comments:

Blind Fastener

Tr. Rev: 1	Q Code
Rev. Date: 3/25/2021	V10
Inspector S Nguyen	


The parts contained in this shipment have been manufactured and inspected in accordance with TSO-C146. The conditions and tests required for TSO approval of this article are minimum performance standards. Aircraft fasteners approved under this TSO are not necessarily interchangeable with other aircraft fasteners approved under this TSO. Fasteners of similar dimensional properties may have widely varying performance and metallurgical properties. Substitution of parts may only be done if acceptable to or approved by the Administrator.

This test report shall not be reproduced except in full, without the written approval of the laboratory.  
The recording of false, fictitious, or fraudulent statement or entries on the certificate may be punished as a felony under Federal law.

Form No. 1141-10-75 Rev. F 07/15/10 CR10-0832

Page 1 of 2



**J72290** 



**CHERRY AEROSPACE**  
1224 East Warner Avenue  
Santa Ana, CA 92707-0157



Chemical Processing  
Heat Treating  
ISO/IEC 17025  
Material Testing Lab

## Final Inspection & Test Report CherryMax® Rivet

An ISO9001 and AS9100 registered company. OASIS #6111041606

Part Numbers CR3213-4-03	Rev AE	Proc. Spec. PS-CMR-3000	Rev R	Lot I.D. No.: <b>88682909</b>
** See 2nd Page for the Customer Parts				Lot Size: <b>32,642</b>
				MFG. Date: <b>March 24, 2021</b>

### ASSEMBLY DATA

TYPE	ID #	CERT #	MATERIAL	FINISH	LUBE
Rivet	88646967	A86953	QQ-A-430/5056	MIL-C-5541 CLEAR CL1A	None
Stern	88628581	A89169	AMS6322 / 8740ST	QQ-P-416/T2CL2/CAD PL	None
Collar	00000000	A90249	A-286 / AMS 5731, 5737	Passivate per AMS2700	None

W.O. #: 5705999

Final Lube: Refined Wax

### QUALITY CONFORMANCE/ACCEPTANCE RESULTS

MIN REQ'D SAMPLE SIZE SPECS	INSTALLED SHEAR		TENSION		SPINDLE RETENTION			DISASSEMBLY
	584		285		125			10
	5	N/A	5	N/A	5		N/A	5
	C-N	B	C-N	B	C-N		B	C-N
RESULTS	909		348		288			62
	776		357		281			54
	779		320		296			60
	776		346		280			62
	774		305		288			63


C=CR N=NAS  
M=MIL B=BAC  
LOAD VALUES  
IN POUND

<u>PCS.</u>	<u>ITEM</u>	<u>STATUS</u>	<u>PCS.</u>	<u>ITEM</u>	<u>STATUS</u>
20	EXAMINATION	PASS	20	INSTALLATION (Min and Max Grips)	PASS



### Comments:

Blind Fastener

Tr. Rev: 1	Q Code
Rev. Date: 3/25/2021	V10
Inspector S. Nguyen	

The parts contained in this shipment have been manufactured and inspected in accordance with TSO-C146. The conditions and tests required for TSO approval of this article and minimum performance standards. Aircraft fasteners approved under this TSO are not necessarily interchangeable with other aircraft fasteners approved under this TSO. Fasteners of similar dimensional properties may have widely varying performance and metallurgical properties. Substitution of parts may only be done if acceptable to or approved by the Administrator.

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Form No. 1141-10-75 Rev. F 07/15/10 CR10-0832

Page 1 of 2

J72290



**CHERRY AEROSPACE**  
1224 East Warner Avenue  
Santa Ana, CA 92707-0157



Chemical Processing  
Heat Treating  
ISO/IEC 17025  
Material Testing Lab

**Final Inspection & Test Report  
CherryMax® Rivet**

An ISO9001 and AS9100 registered company. OASIS #6111041606

Lot I.D. No.: 88682909  
Rev: 1

**Customer Parts List**

<u>Customer Part Number</u>	<u>Rev</u>	<u>Proc. Spec.</u>	<u>Rev</u>
NAS9301BNS-4-03	7	NAS1686	4
ASNA0078A403	R	NAS1686	4
B0207005-4-03	E	MIL-R-7885	D2
CAN43078B4-3	8	NAS1686	4
MBBN3012L3203	01/06	MBBN3015	12.2003
NAS9301B-4-03	7	NAS1686	4



Parts delivered in accordance with the standard amendments as agreed by Cherry/EADS.



J72290



**CHERRY<sup>®</sup> AEROSPACE**  
1224 East Warner Avenue  
Santa Ana, CA 92707-0157



Chemical Processing  
Heat Treating  
ISO/IEC 17025  
Material Testing Lab

## Final Inspection & Test Report CherryMax<sup>®</sup> Rivet

An ISO9001 and AS9100 registered company. OASIS #6111041606

Lot I.D. No.: 88682909  
Rev: 1

### Customer Parts List

<u>Customer Part Number</u>	<u>Rev</u>	<u>Proc. Spec.</u>	<u>Rev</u>
NAS9301BNS-4-03	7	NAS1686	4
ASNA0078A403	R	NAS1686	4
B0207005-4-03	E	MIL-R-7885	D2
CAN43078B4-3	8	NAS1686	4
MBBN3012L3203	01/06	MBBN3015	12.2003
NAS9301B-4-03	7	NAS1686	4



Parts delivered in accordance with the standard amendments as agreed by Cherry/EADS.

J72290



**BENEKE**  
Specialty Aluminum Wire

## Product Certification And Testing Report

Customer:  
CHERRY AEROSPACE LLC  
\*\* DO NOT MAIL \*\* SOA -  
Herbert.Cooley@pccairframe.com

Packing Slip Number: 64349

Date Printed: 8/28/2020

Customer ID: C500

BWC SO No: 39283

Customer PO No: PO233212

Shipped Date: 8/28/2020

INVOICES - cvargas@cherrya

Cust Item ID : M005.1230 ✓

BWC Item No: 501230832041A01V

**Description:**

.123" DIA. + .0005" #4F 5056 - H32 ✓

#4 FINISH, ALUMINUM COLD HEADING WIRE X 22" BLOCKWOUND 100# COILS.

**Specifications**

CUST SPEC M-5

FED SPEC QQ-A-430

REV. T ✓

REV. C ✓

### Chemical Limits

Alloy	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others Each	Others Total	Aluminum Remainder
5056	.30	.40	.10	.05 - .20	4.5 - 5.6	.05 - .20	.10		.05	.15	

**Heat No.**

A20-51565 ✓ .04 ✓ .09 ✓ .02 ✓ .08 ✓ 4.73 ✓ .068 ✓ .01 ✓ .021 NI .01 BE .00066

### Test Results

Lot No.	Case No.	Weight		Diameter		Tensile		Yield		Peak Load		EL %	Grain Size
		Lbs	KG	in.	mm	psi	N/mm <sup>2</sup>	psi	N/mm <sup>2</sup>	Lbs.	N		
VM1001216-5	61405-1	258	117.0	0.1230	3.1242	47,840 ✓	330			569	2,529		
VM1001216-5	61405-2	301	136.5	0.1230	3.1242	47,900 ✓	330			569	2,532		

Total Weight: 559 253.6

OCT 17 2020



**Beneke Wire Company**

WE CERTIFY THAT SAMPLES REPRESENTING THE MATERIAL COVERED IN THIS REPORT HAVE BEEN INSPECTED AND FOUND TO MEET THE COMPOSITION LIMITS AND MECHANICAL PROPERTIES SHOWN ABOVE. ANY WARRANTY IS LIMITED TO THAT SHOWN ON BENEKE WIRE COMPANY'S STANDARD TERMS AND CONDITIONS OF SALE.

5540 National Turnpike Louisville, KY 40214

Shannon King, Plant Metallurgist  
Phone: (502) 367-6434





**Vista Metals Georgia**  
 800 Martin Luther King Jr. Drive  
 Adairsville, GA 30103  
 (770) 773-7653



Higher quality. So is the service.

**Certificate of Inspection and Conformance**



OCT 17 2020

Shipment # 522838

**Customer:**  
 Beneke Wire Company  
 5540 National Turnpike  
 Louisville, KY 40214 US  
 P.O. # 20607

Certified report of chemical analysis  
 (all values are percent concentration)  
 Test Method: ASTM E-1251 & QW824-02

**Order Information:**

Lot#	Customer PN	Alloy	Temper	Size
1001216		5055		

**Physical Properties:**

Lot#	Min WGU KSI	Max WGU KSI	Min WGY %	Max WGY %	Min WGE %	Max WGE %
1001216	0.0	0.0	0.0	0.0	0.0	0.0

Heat	Al	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	V	Ti	Pb	Sn	Na	S	Zr	U	Ca	Be	Bi	Weight
A20-51565	94.91	0.04	0.09	0.02	0.08	4.73	0.068	0.01	0.01	0.007	0.021	0.0011	0.000	0.0000	0.000	0.001	0.000	0.000	0.00066	0.000	25.615



QF03-08F Rev. 02/16/2018

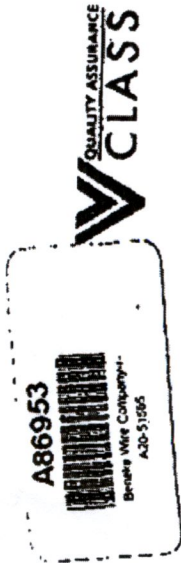
VMC Specialty Alloys LLC d/b/a Vista Metals Georgia is a licensee of Vista Metals Corp.

Page 1 of 2

J72290



**Vista Metals Georgia**  
 800 Martin Luther King Jr. Drive  
 Adairsville, GA 30103  
 (770) 773-7653



**Certificate of Inspection and Conformance**

Applicable Specifications:

Shipment # 522838

OCT 17 2020

**Notes:**

1001216-1: 4975 LBS; 1001216-2: 4990 LBS; 1001216-3: 5455 LBS; 1001216-4: 4890 LBS; 1001216-5: 5305 LBS

**J72290**



Vista Metals Georgia certifies that the material in this shipment meets the requirements of all the applicable specifications/purchase order and verifiable evidence of inspections and testing is available for inspection.  
 Country of Origin, Melt, and Manufacture: U.S.A.

Stamp: VMA 3	Signed By: 	Signed: 	Date: 4/7/20
--------------------	----------------	-------------	-----------------

QF03-08F Rev. 02/16/2018

VMA Specialty Alloys LLC d/b/a Vista Metals Georgia is a licensee of Vista Metals Corp.

Page 2 of 2





SOLD TO

CHERRY AEROSPACE LLC  
 1224 E. WARNER AVENUE  
 SANTA ANA, CA 92705-5414  
 USA

J72290



WORK ORDER  
 149103

CERTIFICATION

HEAT NO. 10660250  
 SALES ORDER / RLS 884082 / 1  
 ISO 9001-2008 REGISTERED



MECHANICAL TESTING  
 CERT # 911.01

CERT# 911.01

CUSTOMER P.O. P0235238	CUSTOMER PART m272.1040	QUANTITY 2,050 Lbs	CARRIERS 4	LADING NO 00146846	SHIPMENT DATE 11/11/2020			
SPECIFICATION C208740-101040A A-8740, AQ, SKFG, CHQ WIRE, SEAM & DECARB FREE, SAIP Zinc Phosphate, Lime & Stearate Coating, Size:0.1035/0.1045 Specifications: AMS 2301K, AMS6322R, MIL-S-6049A, AMEND1, ASTM-A-547, AMS-S-6049-A, M 272.1040 REV. U								
CERTIFICATION REQUIREMENTS								
Chemical Properties								
C	Si	Mn	P	S	Cu	Ni	Cr	Mo
.39	.25	.85	.009	.003	.10	.43	.53	.20
Physical Properties								
Grain Size Jominy 1	Jominy 2	Jominy 3	Inclusions Macro	Cleanliness Mill Source				
6 J5=53	J8=46	J10=43	S2-R1-C2 GOOD	F&S=0	Charter			
Country of Origin USA - DFAR Compliant								
NOV 25 2020								
Mechanical Properties								
TEST	UNITS	Results						
Tensile Strength	KSI	130.5						
Yield Strength	KSI	110.9						
% Elongation	%	3						
% Reduction of Area	%	63.9						
Rockwell Hardness C Scale	HRC	28						
Decarb (Total)	In	0.00						

A89169



Merchandise covered by this invoice is warranted to be free from defects in workmanship or material but not for any specific length of time, type or measure of service. No claim for allowance will be recognized unless presented in writing within 10 days after receipt of material. Our maximum liability for any claim predicated upon defective merchandise is limited to replacement of it, or to repayment of it, or to repayment of the purchase price thereof, as we elect. Material not to specific length or size cannot be returned for credit and request for cancellation of such orders will not be considered if manufacture has been commenced. Buyer, by acceptance of the merchandise covered by this invoice, agrees to the foregoing terms and conditions and those set forth on the reverse hereof. "The recording of false, fictitious or fraudulent statements or entries on this document may be punished as a felony under Federal statutes including Federal law, Title 18, Chapter 47."

REPRODUCTION OF THIS CERTIFICATION IS NOT ALLOWED UNLESS IN FULL.

Wire Tech, Inc. metallurgical laboratory is accredited in the following test: chemical analysis per ASTM E 415, mechanical testing per ASTM A 370, Rockwell hardness per ASTM E 18, metallographic mount preparation per ASTM E 3, decarburization depth per ASTM E 1077, F2282, decarburization performed as per F2282. The reported Chemical and Physical Properties are Mill Source results. Transcribed from mill certificates. HRB(HV) are hardness results performed with a 1/16" carbide ball. Unless otherwise specified, HRB and HRC results are conversions from ASTM A370 tables 1 and 2. \*Test result not covered by our current A2LA accreditation. Tests which have been undertaken by a subcontractor laboratory that is not accredited are not endorsed by A2LA or covered by Wire Tech, Inc. A2LA accreditation.

TEST RESULTS RELATE ONLY TO THE ITEMS TESTED.

"LATEST REVISIONS OF ASTM"

DFAR Material per Clauses 252.225-7014 ALT. 1, 252.225-7009, & 225.003(9)  
 All Statements of conformity are based on simple acceptance

Material is free of mercury, radium, or alpha contamination.

01/02 (v1.1)

page 1 of 1

Eroik Estrada

Quality Manager

11/11/2020  
 DATE

J72290



**CHARTER  
STEEL**

A Division of  
Charter Manufacturing Company, Inc.

EMAIL

1658 Cold Springs Road  
Saukville, Wisconsin 53080  
(262) 268-2400  
1-800-437-8789  
Fax (262) 268-2570

Melted in USA Manufactured in USA

**CHARTER STEEL TEST REPORT**

Wiretech Incorporated  
6440 East Canning Street  
Los Angeles, CA 90040  
Kind Attn :Cert To Contact

Cust P.O.	8348-5
Customer Part #	8740C1A060-C
Charter Sales Order	70096823
Heat #	10660250
Ship Lot #	4643008
Grade	8740 R SK FG AQ 1/4 RND COIL
Process	HRSA
Finish Size	1/4
Ship date	22-JUN-20

I hereby certify that the material described herein has been manufactured in accordance with the specifications and standards listed below and that it satisfies these requirements. The recording of false, fictitious and fraudulent statements or entries on this document may be punishable as a felony under federal statute.

Lab Code: 7388

Test results of Heat Lot # 10660250

CHEM	C	MN	P	S	SI	NI	CR	MO	CU	SN	V
%Wt	.39	.85	.009	.003	.250	.43	.53	.20	.10	.005	.003
	AL	N	B	TI	NB						
	.027	.0070	.0001	.002	.002						

JOMINY(HRC)

J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J12
50	50	50	54	53	50	48	48	45	43	40
J14	J16	J18	J20	J24	J28	J32				
38	36	35	33	31	30	29				

JOMINY SAMPLE TYPE ENGLISH=C

MACTYP=R

MACRO ETCH SURFACE=1

MACRO ETCH RANDOM=1

MACRO ETCH CENTER=1

AMS 2301 FREQUENCY AVERAGE=.00

AMS 2301 SEVERITY AVERAGE=.00

GRAIN SIZE LAB=0358-01

MIN. GRAIN SIZE=6

AMS 2301 FREQUENCY INDIVIDUAL=.00

AMS 2301 SEVERITY INDIVIDUAL=.00

MAX. GRAIN SIZE=8

Test results of Rolling Lot # 1295929

NOV 25 2020



REDUCTION RATIO=616:1

Test results of Processing Lot #4642437, 4643008					
TENSILE (KSI)	# of Tests	Min Value	Max Value	Mean Value	TENSILE LAB = 0358-07
REDUCTION OF AREA (%)	2	80.7	80.8	80.7	RA LAB = 0358-07
		69	72	71	
NUM DECARB=4	FREE FERRITE DECARB (Inch)=.000			FREE FERR & PARTIAL DECARB (Inch)=.002	
NUM SPHERO=4	SPHERODIZATION (%)=90.0			CP SPHERO % LAB=0358-07	

Specifications:

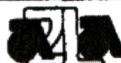
Manufactured per Charter Steel Quality Manual Rev Date 05/12/17  
Charter Steel certifies this product is indistinguishable from background radiation levels by having process radiation detectors in place to measure for the presence of radiation within our process & products.  
Meets customer specifications with any applicable Charter Steel exceptions for the following customer documents:  
Customer Document =  
|| AMS 6322 rev. R  
|| AMS 2301 rev. K  
|| COP3010 rev. M  
|| B325147 rev. 1976 CHEM ONLY

Additional Comments:

Revision = Dated =

Melt Source:  
Charter Steel  
Saukville, WI, USA

Trip: 1434559



Testing Laboratory

Page 1 of 2

This MTR supersedes all previously dated MTRs for this order

Janice Bamard Division Mgr. of Quality Assurance  
bamardj@chartersteel.com  
Printed Date : 06/22/2020



**J72290**



The following statements are applicable to the material described on the front of this Test Report:

1. Except as noted, the steel supplied for this order was melted, rolled, and processed in the United States meeting DFARS compliance, LEEDS compliance, REACH compliance, ROHS-WEEE compliance, and Conflict Materials Restrictions.
2. Mercury was not used during the manufacture of this product, nor was the steel contaminated with mercury during processing.
3. Unless directed by the customer, there are no welds in any of the coils produced for this order.
4. The laboratory that generated the analytical or test results can be identified by the following key:

Certificate Number	Lab Code	Laboratory	Address
0358-01	7388	CSSM Charter Steel Melting Division	1658 Cold Springs Road, Saukville, WI 53080
0358-02	8171	CSSR Charter Steel Rolling	1658 Cold Springs Road, Saukville, WI 53080
0358-07	8171	CSSP Charter Steel Processing Division	1658 Cold Springs Road, Saukville, WI 53080
0358-03	123633	CSFP Charter Steel Ohio Processing Division	6255 US Highway 23, Rising Sun, OH 43457
0358-04	125544	CSCM/ CSCR Charter Steel Cleveland	4300 E. 49th St., Cuyahoga Heights, OH 44125-1004
		--	Subcontracted test performed by laboratory not in Charter Steel System

5. When run by a Charter Steel laboratory, the following tests were performed according to the latest revisions of the specifications listed below, as noted in the Charter Steel Laboratory Quality Manual:

Test	Specifications	CSSM	CSSR/ CSSP	CSFP	CSCM/ CSCR
Chemistry Analysis	ASTM E415; ASTM E1019	X			X
Macroetch	ASTM E381	X			X
Hardenability (Jominy)	ASTM A255; SAE J406; JIS G0561	X			X
Grain Size	ASTM E112	X	X	X	X
Tensile Test	ASTM E8; ASTM A370		X	X	X
Rockwell Hardness	ASTM E18; ASTM A370	X	X	X	X
Microstructure (spheroidization)	ASTM A892		X	X	
Inclusion Content (Methods A, E)	ASTM E45		X		X
Decarburization	ASTM E1077		X	X	X

Charter Steel has been accredited to perform all of the above tests by the American Association for Laboratory Accreditation (A2LA). These accreditations expire 01/31/21. All other test results associated with a Charter Steel laboratory that appear on the front of this report, if any, were performed according to documented procedures developed by Charter Steel and are not accredited by A2LA.

6. The test results on the front of this report are the true values measured on the samples taken from the production lot. They do not apply to any other sample.
7. This test report cannot be reproduced or distributed except in full without the written permission of Charter Steel. The primary customer whose name and address appear on the front of this form may reproduce this test report subject to the following restrictions:
  - It may be distributed only to their customers
  - Both sides of all pages must be reproduced in full
8. This certification is given subject to the terms and conditions of sale provided in Charter Steel's acknowledgement (designated by our Sales Order number) to the customer's purchase order. Both order numbers appear on the front page of this Report.
9. Where the customer has provided a specification, the results on the front of this test report conform to that specification unless otherwise noted on this test report.



NOV 2, 5 2020





J72290



97 Ronze Road • Bristol, CT 06010  
Ph: (860) 583-1305 • Fax: (860) 583-8553  
www.radcliffwire.com

## Cert of Conformance / Material Cert

Sold To: CHERRY AEROSPACE  
SANTA ANA OPERATIONS  
1224 EAST WARNER AVE  
SANTA ANA, CA 92705-5414

Date Shipped: 11/25/2020  
PO #: VP201604  
Radcliff No.: 153681  
Heat No.: qy149/15 ✓  
Qty. Shipped: 187.2 LBS-12 BLACK MIG  
SPOOLS

Item Description			
.006 ±.0005 X .011 ±.0005 X .056 ± .001	A286 Stainless Steel	Edge: SPECIAL SHAPE	Spec: AMS 5731 REV L, AMS 5737 REV P CHEM ONLY
Melting Country: France		Producing Country: United States	
Notes: M189.44 Rev AA ✓			

Chemical Analysis			
Al: .19000% ✓	B: .00600% ✓	Bi: <.00002% ✓	C: .03600% ✓
Co: .23000% ✓	Cr: 15.000% ✓	Cu: .31000% ✓	Fe: BAL
Mn: 1.49000% ✓	Mo: 1.25000% ✓	Ni: 25.84000% ✓	P: .01500% ✓
Pb: <.00010% ✓	S: <.00100% ✓	Si: .11000% ✓	Ti: 2.15000% ✓
V: .30000% ✓			

Mechanical Properties	
Tensile: 105 KSI ✓	DEC 2 1 2020

We certify that the chemical analysis, physical properties, and mechanical test results are correct as contained in our records, and that they conform to customer requirements.

Material as shipped, is free from mercury contamination.

All material complies with RoHS, REACH and Conflict Minerals unless a lead plating has been specified.

Shipment does not contain any counterfeit material.

Material is DFAR compliant

Lisa Piatek

Certification Clerk





J72290



**CWI**

CENTRAL WIRE, INC.

Certificate Of Conformance

Central Wire Inc.  
6509 Olson Road  
Union, IL 60180-0423  
United States

LW ✓

Sold to			Ship to		
RADCLIFF WIRE INC.			RADCLIFF WIRE INC.		
PO BOX 603 BRISTOL, CT 06011-0603 United States			97 RONZO ROAD BRISTOL, CT 06010 United States		
Customer PO 56429	Certification No. CWUS-002168	Customer No. C0000846	Order No. 1257609	Work order	Date shipped 9/16/2020

Description		Round Wire   A286 : A286SF   Cold Drawn   Bright   Clean 0.0430 In 24IN_MOSSBERG_REEL				
Tag	Packing slip	Quantity	UOM	Heat	Country of Manufacture	Country of Melt
4231774 01	3RPS003003	395.00	lb	QY149 / 15	USA	France

Note

Passivated per AMS 2700C (Method 1 - Type 7), AMS 5731L (Chemistry Only), AMS 5737P (Chemistry Only), Material is DFARS 252.225-7008 Compliant



Chemical Analysis (Wt %)									
C	MN	P	S	SI	CR	NI	MO	CU	TI
0.036	1.49	0.015	< 0.001	0.11	15.00	25.84	1.25	0.31	2.15
V	AL	B	CO	BI	PB	Fe (Iron)			
0.30	0.190	0.006	0.23	< 0.00002	< 0.0001	Balance			

Mechanical Properties				
As Shipped				
Tensile		Diameter		
110 KSI		0.0425 In		

DEC 2 1 2020



The material as shipped is free from mercury contamination.  
I certify the chemical analysis and physical and mechanical test results reported above are correct as contained in the records of the company.  
I hereby certify that this material meets the requirements to which it was purchased.

Mike Prather  
Quality Assurance Technician

Signature

A Member of the Central Wire Industries Group  
For terms and conditions: <https://centralwire.com/wp-content/uploads/2019/12/Terms-and-Conditions-of-Sale.pdf>

CWI\_Cert Rev 0  
Page 1 of 1

**operam**

**J72290**



**CERTIFICAT DE RECEPTION 3.1-EN 10204 n° C089285/1**  
Inspection certificate - Abnahmeprüfzeugnis

Usine - Works - Werk  
Alloys Imphy  
58160 IMPHY FRANCE  
Téléphone: 03 86 21 30 00  
Télécopie: 03 86 21 31 00

Client  
Customer  
Kunde : **CENTRAL UNION**  
  
V Commande  
Your order  
Ihre Bestell. Nr : **2017820**  
  
Spécification  
Specification  
Vorschrift : **D.3.PRS.152.S REV.C 4/4/16**  
  
du  
Of : **12/02/18**  
Von

Référence  
Our reference  
Unser Auftrags Nr. : **423261/01**

Produit  
Product  
Erzeugnisform : **DIAM/Ø.2360/I  
SS A286 ESR**

Etat de livraison  
Condition of delivery  
Lieferzustand : **ANNEALED PICKLED  
SHAV-ANN-PICKL**  
N° de fabric.  
Manufact. Nr  
Fabr.Nr : **4100449060**

COMPOSITION CHIMIQUE (10 parts) CHEMICAL COMPOSITION (10 weights) CHEMISCHE ZUSAMMENSETZUNG (10 Gewichte)						Coulée n° : QY149 Melt Nr : Schmelz Nr :		Appré : Mark : Kennzeichnung : 15	
C	Mn	P	S	P	Ni	Cr	Mo	Cu	Co
0.036	1.49	0.11	< 0.001	0.015	25.84	15.00	1.25	0.31	0.23
V	Al	Fe	Pb	B	B	Fe			
0.30	0.190	2.15	< 0.0001	< 0.00002	0.006	bal.			

**CARACTERISTIQUES MECANQUES ET AUTRES ESSAIS / TESTS RESULTS**

ETAT DE LIVRAISON  
CONDITION OF DELIVERY

**DEC 2 1 2020**

RESISTANCE..... TENSILE STRENGTH..... : **661 MPA**  
ALLONGEMENT..... ELONGATION..... : **37.0 %**  
STRICTION..... RED. OF AREA..... : **69.1 %**  
GRAIN ASTM..... SIZE ASTM..... : **09.5**

**HYPERTREMPE 980°1H EAU+VIEILLISSEMENT 720°16H AIR**  
HEAT TREATMENT OF SPECIMEN 1000°F1H WATER+1225°F 16H AIR

LIMITE ELASTIQUE..... YIELD STRENGTH 0.2%..... : **789 MPA**  
RESISTANCE..... TENSILE STRENGTH..... : **1085 MPA**  
ALLONGEMENT..... ELONGATION SUP 40..... : **29.0 %**  
STRICTION..... RED. OF AREA..... : **52.0 %**  
DURETE HB..... HARDNESS..... : **330 HB**

FLUAGE

STRESS RUPTURE TEST AT 1200°F (649°C)

We hereby declare, barring exceptions, reservations or exemptions listed in this statement of conformity, that the listed supplies comply with the contract requirements and that after completion of testing and verification, they completely satisfy all specified requirements, and applicable standards and regulations. Document validated by electronic signature

QUALITY CONTROL DOLE R

Signature  
Signature  
Unterschrift

17/12/18  
Imphy plant

Voir page suivante

PAGE N°:

J72290



aperam

**CERTIFICAT DE RECEPTION 3.1-EN 10204 n°C089285/1**  
Inspection certificate - Abnahmeprüfzeugnis

Client  
Customer  
Kunde : CENTRAL UNION

Order  
Your order  
Ihre Bestellung, Nr : 2017820

Specification  
Specification  
Vorschrift : D.3.PRS.152.S REV.C 4/4/16

Date  
du  
of : 12/02/18

Reference  
Our reference  
Ihrer Auftrag Nr. : 423261/01

UNDER 70.000 PSI(4830MPa)

DUREE DE VIE..... TIME..... 116.4 H  
ALLONGEMENT..... ELONGATION..... 39.0 %

ETAT HYPERTREMPE 900° + VIEILLISSEMENT 720°16H AIR  
HEAT TREATMENT OF TEST SPECIMEN 1650°F IN WATER+1525°F16H AIR

LIMITE ELASTIQUE..... YIELD STRENGTH 0.2% : 792 MPa  
RESISTANCE..... TENSILE STRENGTH..... : 1084 MPa  
ALLONGEMENT..... ELONGATION SUP 40..... : 28.0 %  
STRICTION..... RED. OF AREA..... : 47.0 %  
DURETE HB..... HARDNESS..... : 332 HB

FLUAGE

STRESS RUPTURE TEST AT 1200°F (649°C)

UNDER 65.000 PSI(4480MPa)

DUREE DE VIE..... TIME..... : 203.8 H  
ALLONGEMENT..... ELONGATION..... : 28.0 %

MELTING PROCESS: ELECTRIC ARC FURNACE MELTING + ELECTRO SLAG REMELTING

NO WELDING WITH FILLER METAL HAS BEEN PERFORMED  
STRESS RUPTURE AND AGE HARDENING AND CHEMISTRY TO MEET  
LATEST ISSUE OF AMS 5731L, AMS 5732J, 5734K, 5737P 5853C  
APERAM ALLOYS IMPHY CERTIFIES THAT THIS MATERIAL HAS BEEN  
MELTED PRODUCED IN FRANCE, QUALIFYING COUNTRY, AS  
REQUIRED BY DFARS 252.225-7014  
MATERIAL IS FREE FROM MERCURY, RADIUM, OR ALPHA SOURCE  
CONTAMINATION

THE WILLFUL RECORDING OF FALSE OR FRAUDULENT STATEMENTS  
ON THIS DOCUMENT MAY RESULT IN PUNISHMENT AS A FELONY  
UNDER FEDERAL STATUTES

APPROVAL ACCORDING TO DESP 97/23/EC ANNEX 1 PARAGRAPH 4.3

DEC 2 1 2020



RODOLPH WARE, INC.  
OTWAWA



A90249

Dernière page.

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