



Boeing Distribution Services Inc.

P.O. Box 025263, Miami, FL 33102-5263 • Tel: 305.925.2600 • Fax: 305.507.7191
Plant Location: 3760 W. 108th Street, Miami, FL 33018 • SITA: MIAMMCR
www.BoeingDistribution.com

Shipped From: 3760 W. 108TH ST DOOR B, MIAMI, FL 33018

Material Certification

The items set forth on the purchase order referred to below have been visually inspected and the dimensions thereof have been measured by us, and based on the aforesaid, as well as the representation made to us by the manufacturers of the items subject of such purchase order, we hereby certify that such items are in conformity with all current governmental and manufacturer's requirements, specifications, drawings, and conform to the purchase order requirements. Said items are in new condition and have not been obtained from any U.S. Government or Military source and are traceable to Boeing Distribution Services.

FIRM: AJ WALTER AVIATION LTD**PURCHASE ORDER#: CPE145227**

QUANTITY U/M	PART-NUMBER	CUST REF#	LOT-NUMBER	MANUFACTURER	CCODE MFR DTE	EXP DATE
100 EA	CR3224-4-02		88789538	CHERRY AERO SANTA AN	11815	

BDSI CTRL/LOT # :2023RMMH45


Tracie Davis
Supply Chain Quality Senior Manager

06/14/23

Inv #RMMNR 06/14/23



INV:KM8NSR

Boeing Distribution Services Inc.

Tel: +1.305.925.2600 Fax: +1.305.507.7191 www.BoeingDistribution.com
Remit to Address: 88289 Expedite Way, Chicago, IL 60695-0001
Wire Instructions: Boeing Distribution Services INC. JPMorgan Chase Bank New York
ABA: 021000021 Account: 304639273 SWIFT: CHASUS33 CHIP UID: 0002

PickTkt Number

HPRX61.101

Page 1 of 1

Sold To:

044032
AJ WALTER AVIATION LTD
THE HEADQUARTERS
MAYDWELL AVENUE
SLINFOLD, RH13 0AS
Great Britain



Ship To:

AJ WALTER AVIATION LTD
THE HEADQUARTERS
MAYDWELL AVENUE
SLINFOLD, RH13 0AS
Great Britain

Order No: CPE145227	Date: 06/14/23	Ship Via: FEDX INTL P1 COLL	Terms: NET 60	Shipping Terms: FCA-SELLER'S WHSE
Item No:	Quantity Ordered	Part Number and Description:	Unit:	Shipped:
	100	CR3224-4-02 BLIND RIVET ECCN : EAR99 Tariff : 8308.20.6000 Schedule B : 8308.20.0000 MFR : CHERRY AERO SANTA ANA Ctrl# : 2023BMSH45 Lot# : 88789538 Lot Qty : 100 Country of Origin : US Rev# : AE Cust PN: CR3224-4-02 Cage Code: 11815 Net weight: 0.19 LB / 0.1 KG  CTN: MK000010024499	EA	100
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.				
MATERIAL TO BE RETURNED MUST HAVE PRIOR AUTHORIZATION BY BOEING DISTRIBUTION SERVICES INC.				
ALL ITEMS ARE SUBJECT TO A 100% RESTOCKING CHARGE				

SHIPPED FROM: 3760 W. 108TH ST DOOR B, MIAMI, FL 33018

MATERIAL CERTIFICATION : BOEING DISTRIBUTION SERVICES INC. WARRANTS THAT THE ITEMS SUBJECT OF THIS INVOICE WILL BE FREE FROM DEFECTS OF MATERIAL AND WORKMANSHIP AND, AS SET FORTH ON THE MATERIAL CERTIFICATION FORM ACCOMPANYING THE ITEMS SUBJECT OF THIS INVOICE, ARE IN CONFORMITY WITH ALL CURRENT GOVERNMENTAL REQUIREMENTS AND THE SPECIFICATIONS OF THE RESPECTIVE MANUFACTURERS. BOEING DISTRIBUTION SERVICES DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ALL WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE. THE LIABILITY OF BOEING DISTRIBUTION SERVICES IS EXPRESSLY LIMITED EXCLUSIVELY TO REPLACEMENT BECAUSE OF A DEFECT IN MATERIAL OR WORKMANSHIP SUCH REPLACEMENT SHALL OF ANY ITEM WHICH IS REJECTED CONSTITUTE SATISFACTION OF ALL LIABILITY BOEING DISTRIBUTION SERVICES MAY HAVE IN CONNECTION WITH SUCH ITEM, WHETHER LIABILITY IS BASED UPON CONTRACT RIGHTS, NEGLIGENCE, OR OTHERWISE, AND IN NO EVENT SHALL BOEING DISTRIBUTION SERVICES BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, FURTHER BOEING DISTRIBUTION SERVICES MUST BE NOTIFIED OF A REJECTION OF AN ITEM WITHIN 30 DAYS AFTER RECEIPT BY THE CUSTOMER

PACKING SLIP

Tracie Davis

Supply Chain Quality Senior Manager

BY RECEIVING DELIVERY OF THE ITEMS COVERED BY THIS PACKING SLIP, BUYER AGREES TO THE TERMS AND CONDITIONS OF SALE AT:

<https://www.boeingdistribution.com/aero/conditions-sale/>



CHERRY®
AEROSPACE

SPS Fastener Division, a PCC Company

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



PACKING LIST

Order No: SO431940
Order Date: 04/27/22
Print Date: 01/21/23

Page: 1



Sold-To: 10015341

Ship-To: 10015341

S O L D T O	BOEING DIST. SERVICES INC.
	3760 W 108th STREET
	HIALEAH, FL 33018
	USA

S H I P T O	BOEING DIST. SERVICES INC.
	3760 W 108th STREET
	HIALEAH, FL 33018
	USA



Salesperson (s):110

Purchase Order: 00PKH91

Credit Terms: NET 45
Net 45

Ship Via: NORCO/XPO LOGISTICS
FOB: Origin - Collect

Remarks:

ALL DOMESTIC GROUND; DOMESTIC EXPRESS; INTERNATIONAL USE FDX 6339-4817-8
DOMESTIC FREIGHT LTL USE FDX ACCT 6397-8891-9
GERMANY VAT# DE815535033 UK VAT# GB202335657 FRANCE VAT# FR07808637847
BRITISH AEROSPACE APPROVAL# BAe/AG/30158/MAA to BAe/AG/QC/SC1 PART 3
AIRBUS APPROVAL# 30114

Unless otherwise specified on this order, Cherry will manufacture and
certify parts to the part number's latest revision. Latest revisions are

shown at cherryaerospace.com Part Number Revision List

GOODS OF UNITED STATES ORIGIN ECCN: EAR99 *IF APPLICABLE, PART MEETS DFARS

CLAUSE 252.225-7009 ALT I *PREFERENCE FOR DOMESTIC SPECIALTY METALS

CHERRY IS COMPLIANT TO: **CLAUSE A.3: ALL DOCUMENTS MUST BE SINGLE SIDED**

REACH Compliance Declaration can found on our website at

<https://www.cherryaerospace.com/docs/communiques/G-32.pdf>

Ln	Item Number	Site T Location	Lot/Serial	Qty Open	Promised	
				Qty to Ship	UM	Shipped
1	CR3224-4-02	1600			EA	02/03/23
	Customer Item: CAN43080E4-2					
	NAS9303E-4-02					
	NAS9303ENS-4-02					
	CR3224CF-4-02					
		J1005	88789538	16400.0	()	

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

Packing List



CHERRY®
AEROSPACE

SPS Fastener Division, a PCC Company

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



PACKING LIST

Order No: SO431940
Order Date: 04/27/22
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Page: 1



Sold-To: 10015341

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	3760 W 108th STREET
	HIALEAH, FL 33018
	USA

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REACH Compliance Declaration can found on our website at

<https://www.cherryaerospace.com/docs/communiques/G-32.pdf>

Ln	Item Number	Site T Location	Lot/Serial	Qty Open		Promised	
				Qty to Ship	UM	Shipped	
1	CR3224-4-02 Customer Item: CAN43080E4-2 NAS9303E-4-02 NAS9303ENS-4-02 CR3224CF-4-02 	1600	J1005 88789538	16400.0	()	02/03/23	

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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



DAWN MILLER



CHERRY[®] AEROSPACE
1992 Customer Solution, a PCC Company



Chemical Processing
Heat Treating
ISO/IEC 17025
Material Testing Lab

Final Inspection & Test Report

CherryMax[®] Rivet

1224 East Warner Avenue
Santa Ana, CA 92707-0157

An ISO9001 and AS9100 registered company. OASIS #6111041606

Part Numbers	Rev	Proc. Spec.	Rev			
CR3224-4-02	AE	PS-CMR-3000	U			
** See 2nd Page for the Customer Parts						
				Lot I.D. No.:		88789538
				Lot Size:		16,700
MFG. Date:		January 21, 2023				

ASSEMBLY DATA					
TYPE	ID #	CERT #	MATERIAL	FINISH	LUBE
Rivet	88846767	A94009	QQ-A-430/5056	MIL-DTL-5541, Type-1 CL-1A Clear	None
Stem	88832209	A94777	AMS5657 / 15-7PH	Passivate per AMS2700	AS5272, Type 1, Moly Disulfide
Collar	00000000	A95366	A-286 / AMS 5731, 5737	Passivate per AMS2700	None
W.O. #: 04270671				Final Lube: Refined Wax	

QUALITY CONFORMANCE/ACCEPTANCE RESULTS							
MIN REQ'D SAMPLE SIZE SPECS	INSTALLED SHEAR		TENSION		SPINDLE RETENTION		DISASSEMBLY
	411		250		125		10
	5	N/A	5	N/A	5	N/A	5
	C-N	B	C-N	B	C-N	B	C-N
RESULTS	734		287		193		52
	716		291		192		40
	732		288		192		40
	716		287		197		40
	711		288		190		58
C=CR N=NAS M=MIL B=BAC LOAD VALUES IN POUND							

PCS.	ITEM	STATUS	PCS.	ITEM	STATUS
20	EXAMINATION	PASS	20	INSTALLATION (Min and Max Grips)	PASS

Comments: Blind Fastener	Tr. Rev: 1	Q Code
	Rev. Date: 1/21/2023	V10
	Inspector D Miller	

The parts contained in this shipment have been manufactured and inspected in accordance with TSO-C148. 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.



CHERRY AEROSPACE
SPS Aerospace Division, a PCC Company

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

Customer Parts List

Lot I.D. No.:	88789538
Rev:	1

<u>Customer Part Number</u>	<u>Rev</u>	<u>Proc. Spec.</u>	<u>Rev</u>
CAN43080E4-2	8	NAS1686	4
NAS9303E-4-02	6	NAS1686	4
NAS9303ENS-4-02	6	NAS1686	4
CR3224CF-4-02	AE	PS-CMR-3000	U



Product Certification And Testing Report

Customer: Cherry Aerospace LLC
1224 East Warner Avenue
Santa Ana CA 92705

Packing Slip No: 72626
Customer PO ID: PO248072
Sales Order: 43057
Ship Date: 03/25/2022
Customer No.: CC500

Specifications:
QQA 430 Rev C

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.

M-5 REV. T

Chemical Limits

Alloy	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others Each	Others Total
5056	0.00-0.30	0.00-0.40	0.00-0.10	0.05-0.20	4.50-5.60	0.05-0.20	0.00-0.10	0.00-0.05	.05	.15

Heat No.
A21-60269

0.03 ✓ 0.08 ✓ 0.01 ✓ 0.07 ✓ 4.68 ✓ 0.07 ✓ 0.01 ✓ 0.02 NI .01 BE .00044

Lot No.	Case No.	Weight		Diameter		Tensile		Yield		Peak Load		EL	Grain Size
		Lbs	KG	in.	mm	psi	N/mm2	psi	N/mm2	Lbs	N		
A21-60269													
VM1001993-5	88894-1	334	151.50	0.1230	3.12	✓ 46927	323.55			558	2482	0.00	
VM1001993-5	88894-2	189	76.66	0.1230	3.12	✓ 47360	326.54			563	2504	0.00	
VM1001993-5	88894-3	303	137.44	0.1230	3.12	✓ 47040	324.33			559	2486	0.00	
VM1001993-5	88894-4	208	94.35	0.1230	3.12	✓ 46791	322.61			556	2473	0.00	
Total Weight:		1014	459.94										

APR 06 2022



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

Michael Dant

Michael Dant, Plant Metallurgist

502-367-8434

5440 National Turnpike

Louisville, KY 40214



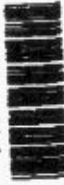
Vista Metals Georgia

800 Martin Luther King Jr. Drive

Adairsville, GA 30103

(770) 773-7653

A94009



Beneke Wire Company
A21-80268



APR 06 2022

Certificate of Inspection and Conformance

Customer:

Beneke Wire Company
5540 National Turnpike
Louisville, KY 40214 US

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

Order Information:

Lot# 1001993
Alloy 5056

Physical Properties:

Lot#	Min WGU KSI	Max WGU KSI	Min WGU %	Max WGU %
1001993	0.0	0.0	0.0	0.0

Heat	Al	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	V	Ti	Pb	Sn	Na	B	Zr	U	Ca	Ba	Br	Weight
A21-C0268	95.01	0.03	0.06	0.01	0.07	4.68	0.067	0.01	0.01	0.011	0.015	0.0010	0.000	0.0000	0.0000	0.000	0.000	0.0001	0.00044	0.000	5.170

The Value



Vista Metals Georgia

800 Martin Luther King Jr. Drive

Adairsville, GA 30103

(770) 773-7653

A94009



Bentley Wire Company
ACT-80288



APR 06 2022

Certificate of Inspection and Conformance

Applicable Specifications:

Notes:
1001993-5 5,170 lbs.

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: 	Signed By:	Signed: 	Date: 1/2/22
------------	------------	-------------	-----------------



Certification ID: 001269608

CARPENTER TECHNOLOGY CORP.
READING OPERATIONS (PA)
HARTMAN & SOFIANOS STS GATE
#6
READING PA 19601

Certificate of Tests

Ship To
CHERRY AEROSPACE LLC 1224 E WARNER AVE SANTA ANA CA 92705-5414

Cert To
CHERRY AEROSPACE LLC 1224 E WARNER AVE SANTA ANA CA 92705-5414

Sales Order Information
Sales Order/Item: 34484/40
Customer PO/Item: PO244073

Delivery Information
Delivery: 80169990
Picked Date: 08/12/2022
Quantity Shipped: 1,814 LB

Production Information
Production Order: W79485
Heat Number: 581776
Ingot(s) Shipped: 4



AUG 20 2022



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.

The values and other technical data represent the results of analyses and tests made on samples collected from the total lot. Original data records can be traced by reference to the Carpenter order number.

During the manufacturing process, this material has not come in direct contact with Mercury or any of its compounds. The material has not come in contact with any radioactive sources, Cobalt 60, Radium or Alpha-Source nor devices employing a single boundary of containment. Material is also weld free.

This document shall not be reproduced, except in full, without the written consent of Carpenter Technology Corporation.

Material has been melted in USA or qualifying country to DFARS requirements 252.225-7014 with alternate 1 for qualifying country 225.872.1, superseded by DFARS requirements DFARS 252.225-7008 and 252.225-7009.

This order was manufactured in accordance with Carpenter Specialty Alloys Operations Quality Program Manual, Revision 37 dated 07/31/2019. Carpenter Technology Corporation is registered to Quality Management System Standards: ISO 9001, AS9120 and AS9100.

This certificate of test is Type 3.1 prepared in accordance with EN 10204 (DIN 50048).

We certify this material to have been manufactured, inspected, and tested; and found the results to conform to all drawing and/or specification requirements and order requirements as applicable.

Carpenter Technology third party accreditation certificates are available on the company website: <https://www.carpenter-technology.com/quality-certifications>

Decision Rule: Unless otherwise specified in a customer/industry specification, Carpenter Technology Corporation will determine acceptability of any test result by comparison of the result with the specification limits, without any additional consideration of the measurement uncertainty. When requested, Carpenter Technology Corporation will provide uncertainty budgets for any test result that is not addressed by the industry standard. When a Decision Rule is defined in a customer/industry specification it will supersede the Corporate Decision Rule.

*Ingot(s) Shipped represents the ingots that were shipped on the specified delivery. The material produced and certified may include additional ingots that were not shipped.

CERTIFICATE OF TESTS
Certification ID:001269608

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE



CARPENTER

Carpenter Technology Corporation
101 West Bern Street, Reading, Pa. 19601
Tel: (610) 208-2000 (800) 338-4592

- 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.
- THE VALUES AND OTHER TECHNICAL DATA REPRESENT THE RESULTS OF ANALYSES AND TESTS MADE ON SAMPLES COLLECTED FROM THE TOTAL LOT. ORIGINAL DATA RECORDS CAN BE TRACED BY REFERENCE TO THE CARPENTER ORDER NUMBER.
- MATERIAL IS MANUFACTURED FREE FROM MERCURY, RADIUM, ALPHA AND GAMMA SOURCE CONTAMINATION.
- THIS DOCUMENT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN CONSENT OF CARPENTER TECHNOLOGY CORPORATION.

08/12/22

CUSTOMER/BESTELLER/CLIENT

REFER TO PAGE 1

SELLER/VERKÄUFER/VENDEUR PAGE 2 OF 6

REFER TO PAGE 1

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./MESS-NR./N° DE REFERENCE INTERNE	DATE/DATUM/DATE	WEIGHT/GEWICHT/POIDS
REFER TO PAGE 1	W79485	SEE PG 1	SEE PG 1

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE : 591776

PRODUCT DESCRIPTION: CARPENTER 15-7 PH ANNEALED COLD FINISH SEAM FREE C HDG
SC2 STRAND CU/SOAP
PART NUMBER: M084.0830 ✓

SPECIFICATION: CHERRY AEROSPACE M-84 REV AG (08/21/20) EXCPT LTR (02/15/21)
APPROVED
AMS 5657 (CHEMISTRY ONLY) REV D (04/ /17) CHEMISTRY ONLY
CHERRY AEROSPACE 1141-06-002 REV P (10/30/18) EXCPT LTR
(11/13/18) APPROVED
PRATT MCL F-17 REV D (10/17/19)
PRATT MCL F-23 REV G (04/26/19)
PRATT PWA 300 REV BR (12/11/19)
PRATT PWA 301 REV AY (08/06/15)
AS6279 REV B (06/ /19)

AUG 20 2022

SIZE 0.083000 IN. (2.11 MM) RD WIRE INGOT 4 LOT 1

HEAT CHEMISTRY(WT%): (TEST METHOD IS SHOWN IN PARENTHESIS)

C (COM)	MN(XRF)	SI(XRF)	P (XRF)	S (COM)	CR(XRF)
0.08 ✓	0.56 ✓	0.25 ✓	0.019 ✓	0.001 ✓	15.38 ✓
NI(XRF)	MO(XRF)	AL(XRF)	N (FUS)		
7.23 ✓	2.15 ✓	1.17 ✓	0.020		

MATERIAL PRODUCED UNDER LCS IN ACCORDANCE WITH P&WA F-17.
TESTING WAS PERFORMED IN ACCORDANCE WITH MCL MANUAL SECTION F-23.
MATERIAL SUPPLIED MEETS THE TECHNICAL REQUIREMENTS OF THE SPECIFICATION(S)
NOTED ON THIS ORDER.
MATERIAL MELTED AND MANUFACTURED IN THE USA.
CARPENTER TECHNOLOGY HAS COMPLIED WITH ALL PRODUCER REQUIREMENTS OF AS 6279
THIS HEAT MELTED BY THE ELECTRIC ARC/AOD + ESR PROCESSES

MILL HEAT TREATMENT:
TYPE FINISH STRAND ANNEAL
TEMP. 2050F (1121C)
TIME AT TEMP. 50 HOURS
QUENCH WATER

ATTACHMENT: MATERIAL SAFETY DATA SHEETS



A94777

CONTINUED ON NEXT PAGE

This certification is made to the customer printed on this form. Carpenter neither makes, nor assumes responsibility for, any representation or certification to other parties.
Die vorliegende Zertifizierung ist nur für den an diesem Formular genannten Kunden gültig. Carpenter übernimmt gegenüber Dritten keinerlei Haftung für die Aussagen/Konten Daten oder Zertifizierungen.
Ce certificat est uniquement valable pour le client dont le nom est imprimé sur ce formulaire. Carpenter n'assume pas de responsabilité pour une certification vis-à-vis d'une tierce personne.



CARPENTER

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101 West Bern Street, Reading, Pa. 19601
Tel: (610) 208-2000 (800) 338-4592

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08/12/22

CUSTOMER/BESTELLER/CLIENT

REFER TO PAGE 1

SELLER/VERKÄUFER/VENDEUR PAGE 3 OF 6

REFER TO PAGE 1

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./WERS-NR./N° DE REFERENCE INTERNE	DATE/DATUM/DATE	WEIGHT/GEWICHT/POIDS
REFER TO PAGE 1	W79485	SEE PG 1	SEE PG 1

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE : 591776

HARDNESS AS SHIPPED, HV - 274 (CENTER)
PER ASTM E384 500 GRAM LOAD
*-->TESTED AT READING

GRAIN SIZE PER ASTM E112: 12 (KALLIGNS NO.2)
*-->TESTED AT READING

CAST TEST: SATISFACTORY *-->TESTED AT READING

MICRO SURFACE DEFECT - ACCEPTABLE
*-->TESTED AT READING

CAPABILITY

1750 F(954 C), 10 MN AIR COOL
WITHIN 1 HR, COOL TO -100F +/-10F, 8HRS
WARM IN AIR TO ROOM TEMPERATURE
1000 F(538 C), 01 HR AIR COOL

AUG 20 2022

(T)RANSVERSE	(L)ONGITUDINAL	L
YIELD STRENGTH (0.20 %)	KSI(MPA)	232.0(1600)
TENSILE STRENGTH, KSI(MPA)		234.0(1613)
ELONGATION IN 2.00"	%	3.8
REDUCTION OF AREA, %		43.0

*-->TESTED AT READING



CONTINUED ON NEXT PAGE

CERTIFICATE OF TESTS

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE

Certification ID:001269608



CARPENTER

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101 West Bern Street, Reading, Pa. 19601
Tel: (610) 208-2000 (800) 338-4592

08/12/22

CUSTOMER / BESTELLER / CLIENT

REFER TO PAGE 1

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SELLER / VERKÄUFER / VENDEUR PAGE 4 OF 6

REFER TO PAGE 1

CUSTOMER ORDER NO. / BESTELL-NR. / N° DE COMMANDE	CARPENTER NO. / MERKS-NR. / N° DE REFERENCE INTERNE	DATE / DATUM / DATE	WEIGHT / GEWICHT / POIDS
REFER TO PAGE 1	W79485	SEE PG 1	SEE PG 1

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE :

591776

(T)RANSVERSE (L)ONGITUDINAL	L (COIL 1)	L (COIL 2)	L (COIL 3)
YIELD STRENGTH, (0.20 %) KSI(MPA)	99.0 (683)	101.0 (696)	101.0 (696)
TENSILE STRENGTH, KSI(MPA)	151.0 (1041) ✓	150.0 (1034) ✓	150.0 (1034) ✓
ELONGATION IN 2.00", %	23.0	25.0	25.0
REDUCTION OF AREA, %	44.0	29.0	39.0

*-->TESTED AT READING

(T)RANSVERSE (L)ONGITUDINAL	L (COIL 4)	L (COIL 5)	L (COIL 6)
YIELD STRENGTH, (0.20 %) KSI(MPA)	102.0 (703)	100.0 (689)	98.0 (676)
TENSILE STRENGTH, KSI(MPA)	151.0 (1041) ✓	151.0 (1041) ✓	150.0 (1034) ✓
ELONGATION IN 2.00", %	24.0	23.0	24.0
REDUCTION OF AREA, %	37.0	23.0	8.0

*-->TESTED AT READING

(T)RANSVERSE (L)ONGITUDINAL	L (COIL 7)	L (COIL 8)	L (COIL 9)
YIELD STRENGTH, (0.20 %) KSI(MPA)	100.0 (689)	99.5 (686)	104.0 (717)
TENSILE STRENGTH, KSI(MPA)	151.0 (1041) ✓	150.0 (1034) ✓	152.0 (1048) ✓
ELONGATION IN 2.00", %	23.0	23.0	24.0
REDUCTION OF AREA, %	2.9	43.0	32.0

*-->TESTED AT READING

(T)RANSVERSE (L)ONGITUDINAL	L (COIL 10)	L (COIL 11)	L (COIL 12)
YIELD STRENGTH, (0.20 %) KSI(MPA)	105.0 (724)	106.0 (731)	106.0 (731)
TENSILE STRENGTH, KSI(MPA)	152.0 (1048) ✓	150.0 (1034) ✓	150.0 (1034) ✓
ELONGATION IN 2.00", %	25.0	24.0	24.0
REDUCTION OF AREA, %	44.0	42.0	17.0

*-->TESTED AT READING

(T)RANSVERSE (L)ONGITUDINAL	L (COIL 13)
YIELD STRENGTH, (0.20 %) KSI(MPA)	104.0 (717) ✓
TENSILE STRENGTH, KSI(MPA)	151.0 (1041) ✓
ELONGATION IN 2.00", %	23.0
REDUCTION OF AREA, %	36.0

*-->TESTED AT READING

AUG 20 2022



A94777

CONTINUED ON NEXT PAGE

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CERTIFICATE OF TESTS

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE

Certification ID:001269608



CARPENTER

Carpenter Technology Corporation
101 West Bern Street, Reading, Pa. 19601
Tel: (610) 208-2000 (800) 338-4392

08/12/22

CUSTOMER / BESTELLER / CLIENT

REFER TO PAGE 1

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SELLER / VERKÄUFER / VENDEUR PAGE 5 OF 6

REFER TO PAGE 1

CUSTOMER ORDER NO. / BESTELL-NR. / N° DE COMMANDE	CARPENTER NO. / WERKS-NR. / N° DE REFERENCE INTERNE	DATE / DATUM / DATE	WEIGHT / GEWICHT / POIDS
REFER TO PAGE 1	W79485	SEE PG 1	SEE PG 1

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE :

591776

ADDRESS OF TESTING LOCATIONS:

READING - 101 WEST BERN ST,

READING, PA 19601

MATERIAL HAS BEEN MELTED AND MANUFACTURED IN THE USA WHICH IS A QUALIFYING COUNTRY TO DFARS REQUIREMENTS 252.225-7014 WITH ALTERNATE 1 FOR QUALIFYING COUNTRY 225.872.1, SUPERSEDED BY DFARS REQUIREMENTS DFARS 252.225-7008 AND 252.225-7009.

UNLESS OTHERWISE STATED, THE TEST WERE PERFORMED TO THE LATEST REVISION OF THE STANDARDS LISTED BELOW: 1) BEND TEST - ASTM E290, 2) CHARPY IMPACT - ASTM E23, 3) COEFFICIENT OF LINEAR THERMAL EXPANSION - ASTM E228, 4) FRACTURE TOUGHNESS - ASTM E399, 5) BRINELL HARDNESS - ASTM E10, 6) ROCKWELL HARDNESS-ASTM E18, 7) MICRO VICKERS HARDNESS-ASTM E92, 8) KNOOP HARDNESS-ASTM E92, 9) MACRO VICKERS HARDNESS-ASTM E92, 10) STRESS RUPTURE/ CREEP RUPTURE-ASTM E139, 11) STRESS RUPTURE (COMBINATION)-ASTM E292, 12) ROOM TEMPERATURE TENSILE-ASTM E8, 13) ELEVATED ROOM TEMPERATURE TENSILE-ASTM E21, 14) DECARBURIZATION-ASTM E1077, 15) DELTA FERRITE AMS 2315, 16) GRAIN SIZE-ASTM E112, 17) INCLUSION CONTENT/MICROCLEANLINESS-ASTM E45, 18) INTERGRANULAR ATTACH - ASTM A262, 19) INTERGRANULAR CORROSION-ASTM A262, 20) MACRO ETCH&TESTING - ASTM A604/E381, 21) PITTING CORROSION - ASTM A923, 22) CREVICE CORROSION-ASTM G48, 23) HARDNESS CONVERSIONS - ASTM E140, 24) XRF-ASTM E572/E1085/E2465, 25) OES - ASTM E415/E1086, 26) COM - ASTM E1019, 27) FUS - ASTM E1019, 28) MS - CARPENTER METHODS 206.8500/206.8530, 29) CHEMISTRY RESULTS ARE ROUNDED IN ACCORDANCE WITH ASTM A751 WHICH CONFORMS TO ASTM E29 WITH ONE SPECIAL EXCEPTION THIS ORDER WAS MANUFACTURED IN ACCORDANCE WITH CARPENTER SPECIALTY ALLOYS OPERATIONS QUALITY PROGRAM MANUAL, REVISION 37 DATED 07/31/2019.

CARPENTER'S QUALITY MANAGEMENT SYSTEM IS REGISTERED TO ISO 9001 AS9100 AND AS9120. THIS CERTIFICATION OF TEST IS TYPE 3.1 PREPARED IN ACCORDANCE WITH EN 10204 (DIN 50049). WE HEREBY CERTIFY THAT THE ABOVE TEST DATA ARE IN ACCORDANCE WITH THE PURCHASE ORDER AND SPECIFICATION REQUIREMENTS, AS DOCUMENTED IN THIS CERTIFICATE OF TESTS.

TEST METHODS ARE PER THE ASTM STANDARDS ON FILE AND IN EFFECT AT TIME OF ORDER ACCEPTANCE, STANDARD PRACTICES, OR AS AGREED UPON BETWEEN CARPENTER & CUSTOMER.

THE ABSENCE OF A REPORTED TEST TEMPERATURE INDICATES THAT THE TEST WAS COMPLETED AT ROOM TEMPERATURE.

AUG 20 2022



CONTINUED ON NEXT PAGE

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ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE



CARPENTER

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08/12/22

CUSTOMER/BESTELLER/CLIENT

REFER TO PAGE 1

SELLER/VERKÄUFER/VENDEUR PAGE 6 OF 6

REFER TO PAGE 1

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./WERKE-NR./N° DE REFERENCE INTERNE	DATE/DATUM/DATE	WEIGHT/GEWICHT/POIDS
REFER TO PAGE 1	W79485	SEE PG 1	SEE PG 1

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE: 591776
 DECISION RULE: UNLESS OTHERWISE SPECIFIED IN A CUSTOMER/INDUSTRY SPECIFICATION, CARPENTER TECHNOLOGY CORPORATION WILL DETERMINE ACCEPTABILITY OF ANY TEST RESULT BY COMPARISON OF THE RESULT WITH THE SPECIFICATION LIMITS, WITHOUT ANY ADDITIONAL CONSIDERATION OF THE MEASUREMENT UNCERTAINTY. WHEN REQUESTED, CARPENTER TECHNOLOGY CORPORATION WILL PROVIDE UNCERTAINTY BUDGETS FOR ANY TEST RESULT THAT IS NOT ADDRESSED BY THE INDUSTRY STANDARD.

DIGITALLY SIGNED BY TERRY L GABRILL
 ADMINISTRATOR - QUALITY
 CARPENTER TECHNOLOGY CORPORATION

AUG 20 2022

Carpenter Corp.
 591776



A94777

Terry L Gabrill

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Cert of Conformance / Material Cert

Sold To: **CHERRY AEROSPACE**
PO BOX 2157
SANTA ANA, CA 92707

Date Shipped: 12/7/2022
 PO #: VP122821
 Radcliff No.: 159796
 Heat No.: QY679/12 ✓
 Qty. Shipped: 106.1 LBS-10 BLACK MIG SPOOLS

Item Description

.006 ±.0005 X .011 ±
 .0005 X .056 ±.001 A286 Stainless Steel Edge: SPECIAL
 SHAPE-SEE PRINT Spec: AMS 5731 REV
 L, AMS 5737 REV P
 CHEM ONLY ✓

Melting Country: France

Producing Country: United States

Notes:

M189.44 Rev AA ✓
 AMS2700 PASSIVATED IN PROCESS ✓
 CONSIGNMENT ORDER ✓

Chemical Analysis

Al: .18800% ✓	B: .00600% ✓	Bi: <.00002% ✓	C: .03100% ✓
Co: .46000% ✓	Cr: 14.88000% ✓	Cu: .30000% ✓	Fe: BAL
Mn: 1.43000% ✓	Mo: 1.24000% ✓	Ni: 24.67000% ✓	P: .01500% ✓
Pb: <.00010% ✓	S: .00100% ✓	Si: .08000% ✓	Ti: 2.16000% ✓
V: .31000% ✓			

Mechanical Properties

Tensile: 99 KSI ✓

DEC 15 2022

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, and does not contain any counterfeit material.

All material complies with RoHS 3, REACH and Conflict Minerals unless a lead plating has been specified.

Material is DFAR compliant

Note: Material SDS will be emailed upon request

Lisa Piatek

Lisa Piatek
 Certification Clerk

RADCLIFF WIRE INC.
 01/16/13



A95366

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 59185	Certification No. CWUS-00025545	Customer No. C0000846	Order No. 3R5000013483	Work order 3W00018700	Date shipped 10/4/2022

Description		Round Wire A286 : A286SF Cold Drawn Bright Clean 0.0430 in 24IN_MOSSBERG_REEL SSA286-043				
Tag	Packing slip	Quantity	UOM	Heat	Country of Manufacture	Country of Melt
3W00018700	3RPS000376 47	208.00	lb	QY679/12	USA	France

Note
Passivated per AMS 2700C (Method 1 - Type 7), AMS 5731L (Chemistry Only), AMS 5737P (Chemistry Only), Material is DFARS 252.225-7009 Compliant

Chemical Analysis (Wt %)									
C	MN	P	S	SI	CR	NI	MO	CU	TI
0.031	1.43	0.015	0.001	0.08	14.88	24.67	1.24	0.30	2.16
V	AL	B	CO	BI	PB	Fe (Iron)			
0.31	0.188	0.006	0.46	< 0.00002	< 0.0001	Balance			

Mechanical Properties				
As Shipped				
Tensile	Diameter			
115 KSI	0.0426 in			

DEC 15 2022



A95366

The material as shipped is free from mercury contamination.
I certify the chemical analysis and physical and mechanical test results reported are correct as contained in the records of the company, and that this material meets the requirements to which it was purchased.
This certificate complies with the requirements of EN 10204 Inspection Certificate Type 3.1.

Mike Prather

Mike Prather
Quality Assurance Technician

Signature

aperam

CERTIFICAT DE RECEPTION 3.1-EN 10204 n° C089893/1
 Inspection certificate - Abnahmeprüfzeugnis

Usine - Works - Werk
Alloys Imphy
 58160 IMPHY FRANCE
 Téléphone: 03 06 21 34 00
 Télécopie: 03 06 21 01 00

Client Customer Kunde	: CENTRAL UNION	de OF : 20/06/18	REFERENCE Our reference Unser Auftrag Nr. : 425626/03
V/Commande Your order Ihre Bestell. Nr.	: 2018365		
Spécification Specification Vorschrift	: D.3.PRS.152.5 REV.C 4/4/16		

Produit Product Erzeugnisform	: DIAM/0.2360/I SS A286 ESR	Etat de livraison Condition of delivery Lieferzustand	: ANNEALED PICKLED SHAV-ANN-PICKL
		N° de fabric. Manufact. Nr. Fabrik. Nr.	: 4100456774

COMPOSITION CHIMIQUE (% poids)		Coulée N° Heat Nr.		Réfère Mark	
CHEMICAL COMPOSITION (% weight)		0Y679		12	
CHEMISCHE ZUSAMMENSETZUNG (% Gewicht)		Schmelz Nr.		Kennzeichnung	
C	0.031	Mn	1.43	Si	0.08
S	0.001	P	0.015	N	24.67
Cr	14.88	Mo	1.24	Cu	0.30
Co	0.46				
V	0.31	Al	0.188	Fe	2.16
		B	< 0.0001		< 0.00002
			0.006		bal.

WE CERTIFY THAT THIS MATERIAL HAS BEEN MELT AND PRODUCED AT THE
 MELTSHOP OF APERAM ALLOYS IMPHY IN IMPHY PLANT :
 EAF + VOD

CARACTERISTIQUES MECANQUES ET AUTRES ESSAIS / TESTS RESULTS

ETAT DE LIVRAISON

DEC 15 2022



CONDITION OF DELIVERY

RESISTANCE..... TENSILE STRENGTH..... : 631 MPA
 ALLONGEMENT..... ELONGATION..... : 37.0 %
 STRICTION..... RED. OF AREA..... : 73.1 %
 GRAIN ASTM..... SIZE ASTM..... : 8.0

HYPERTREMPE 980°1H EAU+VIEILLISSEMENT 720°16H AIR

HEAT TREATMENT OF SPECIMEN 1000°F/1H WATER+1225°F 16H AIR

LIMITE ELASTIQUE. YIELD STRENGTH 0.2% : 777 MPA
 RESISTANCE..... TENSILE STRENGTH..... : 1090 MPA
 ALLONGEMENT..... ELONGATION SHR 40..... : 29.0 %
 STRICTION..... RED. OF AREA..... : 51.0 %

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	08/02/19 Imphy plant
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Voir page suivante

RAOULIFF WIRE, INC. -
 01679/12



A95366

Client Customer Kunde	: CENTRAL UNION	du of : 20/06/18 for	REFERENCE Our reference Ihre Auftrag Nr. : 425626/03
VI Commande Your order Ihre Bestell. Nr.	: 2018365		
Specification Specification Vorschrift	: D.3.PRS.152.S REV.C 4/4/16		

DURETE HB..... HARDNESS..... : 330 HB

FLUAGE

STRESS RUPTURE TEST AT 1200°F (649°C)

UNDER 79,000 PSI (4400MPa)

DUREE DE VIE..... TIME..... : 192.9H
ALLONGEMENT..... ELONGATION..... : 23.0 %

ETAT HYPERTREMPE 900° + VIEILLISSEMENT 720°16H AIR

HEAT TREATMENT OF TEST SPECIMEN 1650°F IN WATER-1225°F/16H AIR

LIMITE ELASTIQUE. YIELD STRENGTH 0.2% : 787 MPA
RESISTANCE..... TENSILE STRENGTH..... : 1085 MPA
ALLONGEMENT..... ELONGATION SUR 4D..... : 28.0 %
STRICTION..... RED. OF AREA..... : 52.0 %
DURETE HB..... HARDNESS..... : 334 HB

FLUAGE

STRESS RUPTURE TEST AT 1200°F (649°C)

UNDER 65,000 PSI (4400MPa)

DUREE DE VIE..... TIME..... : 184.8H
ALLONGEMENT..... ELONGATION..... : 24.0 %

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 I PARAGRAPH 4.3

DEC 15 2022



RAOCLIFF WIRE, INC.
01878/12
A95366