

CERTIFICATE OF TESTS  
Certification ID:001248631

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE



**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 MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUTES INCLUDING FEDERAL CHAPTER 47.
- THE VALUES AND OTHER TECHNICAL DATA REPRESENT THE RESULTS OF ANALYSES ON SAMPLES COLLECTED FROM THE TOTAL LOT. ORIGINAL DATA RECORDS CAN REFERENCE TO THE CARPENTER ORDER NUMBER.
- MATERIAL IS MANUFACTURED FREE FROM MERCURY, RADIUM, ALPHA AND GAMMA SOURCE
- THIS DOCUMENT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE W OF CARPENTER TECHNOLOGY CORPORATION.

12/14/21

CUSTOMER/BESTELLER/CLIENT

REFER TO PAGE 1

SELLER/VERKAUFER/VENDEURPAGE

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| CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE | CARPENTER NO./WERKS-NR./N° DE REFERENCE INTERNE | DATE/DATUM/DATE |
|-----------------------------------------------|-------------------------------------------------|-----------------|
| REFER TO PAGE 1                               | W84895                                          | SEE PG 1        |

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

758046

PRODUCT DESCRIPTION: CUSTOM FLO 302 HQ STARR WIRE COLD FINISH SEAM FRI  
----- ANNEALED C HDG CL C1 PRECOAT  
PART NUMBER: 330230202130

SPECIFICATION: PENNENGINEERING 3-30-2302 REV E (02/14/18) EXCPT LTR (C  
----- PENDING  
ASTM-A493-16 GRADE S30200  
PENNENGINEERING QSP 6.5 REV V (04/12/19) EXCPT LTR (03/  
PENDING  
PENNENGINEERING MAT-3 REV C (06/04/18) EXCPT LTR (08/13/  
PENDING

SIZE 0.213000 IN. ( 5.41 MM) RD WIRE

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

|         |         |         |         |         |
|---------|---------|---------|---------|---------|
| C (COM) | MN(XRF) | SI(XRF) | P (XRF) | S (COM) |
| 0.01    | 1.56    | 0.23    | 0.019   | 0.001   |
| NI(XRF) | CU(XRF) | C+N     | NI+CU   |         |
| 9.50    | 3.73    | 0.026   | 13.23   |         |

CAPABLE OF PASSING INTERGRANULAR CORROSION TEST PER ASTM-A262 - PRACTI  
THIS MATERIAL WAS MANUFACTURED FREE FROM MERCURY, RADIUM AND ALPHA SOU  
CONTAMINATION.

THIS MATERIAL CONFORMS TO THE SPECIFICATION(S) LISTED ABOVE.  
PROVISIONS OF 10 CFR PART 21 AND 10 CFR PART 50 - APPENDIX B APPLY.  
CARPENTER TECHNOLOGY COMPLIES TO THE EUROPEAN DIRECTIVE (EU) 2011/65/E  
MATERIAL SUPPLIED MEETS THE TECHNICAL REQUIREMENTS OF THE SPECIFICATIO  
NOTED ON THIS ORDER.

SOLUTION ANNEALED TO PROVIDE A MICROSTRUCTURE FREE FROM CONTINUOUS GRA  
BOUNDARY CARBIDE PRECIPITATION (NETWORK).

THIS HEAT MELTED BY THE ELECTRIC ARC/AOD PROCESSES  
MATERIAL MELTED & MANUFACTURED AT CARPENTER READING, PA AND TALLEY, S.  
FACILITIES.

MAGNETIC PERMEABILITY <1.20

\*-->TESTED AT READING

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HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE :  
ADDRESS OF TESTING LOCATIONS:  
READING - 101 WEST BERN ST,

758046

READING, PA 19601

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

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

CARPENTER'S QUALITY MANAGEMENT SYSTEM WAS 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 IS 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 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.

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DECISION RULE: UNLESS OTHERWISE SPECIFIED IN A CUSTOMER/INDUSTRY SPECIFICATION, CARPENTER TECHNOLOGY CORPORATION WILL DETERMINE ACCEPTABILITY OF ANY RESULT BY COMPARISON OF THE RESULT WITH THE SPECIFICATION LIMITS. WITH ADDITIONAL CONSIDERATION OF THE MEASUREMENT UNCERTAINTY. WHEN REQUESTED, CARPENTER TECHNOLOGY CORPORATION WILL PROVIDE UNCERTAINTY BUDGETS FOR ANY RESULT THAT IS NOT ADDRESSED BY THE INDUSTRY STANDARD.

DIGITALLY SIGNED BY TERRY L. GILBERT  
ADMINISTRATOR - QUALITY  
CARPENTER TECHNOLOGY CORPORATION