BON DE LIVRAISON EXEMPLAIRE CLIENT

thyssenkrupp Materials France
Société par Actions Simplifiée au capital de 25 957 610 euros.
Zone d'activité PARIWEST
B. P. 52, 78311 MAUREPAS CEDEX
Tél. : 01.30.69.67.00 Fax. : 01.30.50.93.46
R.C. VERSAILLES B 562.068.155 - SIRET 562.068.155 00026
TVA FR 30 562 068 155 - TELEX 696876 F

thyssenkrupp

N° DEPOTS		N° BON DE LIVRAISON	N° CLIENT	REPRESENTANT 1	DATE	N° COMMANDE	FOLIO
19	1	461194	1613	BOYER JM	18/11/2021	461194	01

LIVRAISON PAR NOS SOINS ZONE 11
DEPART : 19/11/2021 TEL.CLIENT 01.69.88.11.80 ZONE: 11
ARRIVEE: 22/11/2021
CLIENT FERME LE VENDREDI APRES MIDI

MODE D'EXPEDITION	REFERENCES COMMANDE CLIENT
BC / BC REFACTURE	CDE ACH210271 09/11

Identification INTRACOM : FR18308296557

SUPADIS

7 RUE DU BICENTENAIRE DE LA REVOLUT

91220 LE PLESSIS PATE

L E1S1

ZONE	CAMION	LIGNE
11	0000	**

HEURE D'EDITION
10333196

BON DE LIVRAISON

N° LIGNE	DESIGNATION	QUANTITE UNITE	QUANTITE POIDS	NOMBRE COUPE	NOMBRE BARRE	OBSERVATIONS	N° CELL	NO. COULEE	PREPARATEURS C	PREPARATEURS P
01	ALLOY 718 RECUIT "AERO" ********** * ********** SANS NORME AERO IMPOSEE LIVRE: R 40 4070+4020 R 40 4000 AE * CA PERSONNALISE ***** CA PERSONNALISE ***** CA PERSONNALISE ***** CA PERSONNALISE ***** CA		2 PIECES			TYPE CA : 7	12	973516 W89858	167	167

5099

CA FAIT LE
18 NOV. 2021

Déclaration de Conformité/Declaration of Conformity
(NF.EN.ISO CEI 17050-1 et NFL 00 015C)

Nous déclarons que la fourniture citée est conforme aux exigences du contrat et que, après vérifications et essais, elle répond en tout point, aux exigences spécifiées, aux normes et réglements applicables, sauf exceptions, réserves ou dérogations énumérées dans la présente déclaration de conformité :

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:

Frederic Barban
Directeur Qualité

SUPADIS
7, Rue du Bicentenaire de la Révolution
91220 LE PLESSIS PATE

19 NOV. 2021

ACCEPTATION SOUS RÉSERVE D'UN

TOTAL FOLIO		
DATE	NBRE COLIS	POIDS TOTAL
	1	88,00
TOTAL COMMANDE		
	1	88,00

Ce bon de livraison est établi selon nos CGV, consultables sur notre site www.thyssenkrupp-materials.fr et peuvent être envoyées au client à sa demande.
This delivery order is issued according to our T&C, available on www.thyssenkrupp-materials.fr and which can be sent if requested by the customer.

Nuance : ALLOY 718 RECUIT
Coulee : 973516 lot : W89858
Commande : BL :461194 Poste:01
Client : SUPADIS
CDE ACH210271 09/11

thyssenkrupp

CERTIFICATE OF TESTS — ABNAHMEPRUEFZEUGNIS — CERTIFICAT DE CONTROLE

CERT SERIAL# 001162299

CARPENTER

Carpenter Technology Corporation
101 West Bern Street, Reading, Pa. 19601

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06/11/19

CUSTOMER/BESTELLER/CLIENT

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6, AVENUE GUTENBERG
78317
MAUREPAS , FRANCE

SELLER/VERKÄUFER/VENDEUR

CARPENTER TECHNOLOGY EUROPE SA
RUE EDOUARD BELIN 11

1435 MT ST GUIB, BELGIUM

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./WERKS-NR./ N° DE REFERENCE INTERNE	DATE/DATUM/DATE	WEIGHT/GEWICHT/POIDS
85864	W89858	06/11/19	1927.00

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE: 973516

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
THIS ORDER WAS MANUFACTURED IN ACCORDANCE WITH CARPENTER SPECIALTY ALLOYS OPERATIONS QUALITY PROGRAM MANUAL, REVISION 36 DATED 12/15/2017.

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 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.

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.

JASON M RAYMOND
ADMINISTRATOR - QUALITY
CARPENTER TECHNOLOGY CORPORATION

FORM EZ-366

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Nuance : ALLOY 718 RECUIT
Coulee : 973516 lot : W89858
Commande : BL :461194 Poste:01
Client : SUPADIS
CDE ACH210271 09/11

thyssenkrupp

CERTIFICATE OF TESTS — ABNAHMEPRUEFZEUGNIS — CERTIFICAT DE CONTROLE

CERT SERIAL# 001162299

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06/11/19

CUSTOMER/BESTELLER/CLIENT

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6, AVENUE GUTENBERG
78317
MAUREPAS ,FRANCE

SELLER/VERKÄUFER/VENDEUR

CARPENTER TECHNOLOGY EUROPE SA
RUE EDOUARD BELIN 11

1435 MT ST GUIB,BELGIUM

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./WERKS-NR./ N° DE REFERENCE INTERNE	DATE/DATUM/DATE	WEIGHT/GEWICHT/POIDS
85864	W89858	06/11/19	1927.00

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE: 973516
CHEMISTRY CHECK (WT%) AT SIZE 8.375 IN.

	C	MN	SI	P	S	CR
4A (TOP)	0.04	0.07	0.06	0.010	LT .001	18.32
4X (BOTTOM)	0.04	0.07	0.08	0.010	LT .001	18.37

	NI	MO	CU	CO	AL	TI
4A (TOP)	52.57	2.87	0.08	0.38	0.52	0.97
4X (BOTTOM)	52.53	2.88	0.07	0.37	0.59	0.83

	CB	MG	B	CB+TA	CA	FE
4A (TOP)	5.15	0.01	0.005	5.15	LT .001	18.18
4X (BOTTOM)	5.16	0.01	0.004	5.16	LT .001	18.26

ULTRASONIC INSPECTION PERFORMED PER AMS-STD-2154, CLASS AA SATISFACTORY PER CARPENTER PROCEDURE: B-UT-I-588 REV 11, TECNICAL ADDENDUM 12, REV 2

ULTRASONIC DATA
EQUIPMENT DATA:

CHANNEL	INSTR ID	TRANSDUCER ID				WATER PATH	BACK REFLECT	REJECT % OF CAL
						1.40	80	50
01	2098	971337						
02	2098	866058	.180	.090	.031	50	1.35	
03	2098	K30507			.004	25	1.40	
04	2098	K30508			.004	25	1.35	

RCB NO: T 6995 LIN. RCB NO:T 6695
SCANNING SPEED: 300 SURF FT/MIN

INSPECTION DATA:
PROC. NO: U588R11 TA12R02

INSPECTOR: Z GUTZLER LEVEL: II DATE: 05/31/19

CONTINUED ON NEXT PAGE

FORM F2-566

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RUE EDOUARD BELIN 11
1435 MT ST GUIB,BELGIUM

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./WERKS-NR./ N° DE REFERENCE INTERNE	DATE/DATUM/DATE	WEIGHT/GEWICHT/POIDS
85864	W89858	06/11/19	1927.00

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE: 973516

CAPABILITY

1325 F(718 C), 08 HR — FURNACE COOL
1150 F(621 C), 08 HR — AIR COOL

HARDNESS , HBW - 408 (MIDRADIUS)

COMBINATION STRESS RUPTURE
TEST TEMP 1200 F(649 C)
STRESS, MPA(KSI) 689(100.0)
ELONGATION % 41.9
HOURS 144.7 SMOOTH SECTION

(T)RANSVERSE (L)ONGITUDINAL	L
YIELD STRENGTH, (0.20 %) MPA(KSI)	1124(163.0)
TENSILE STRENGTH, MPA(KSI)	1400(203.0)
ELONGATION IN 1.25", %	21.0
ELONGATION IN 1.00", %	24.0
REDUCTION OF AREA, %	38.0

CAPABILITY

1328 F(720 C), 08 HR
FURNACE COOL AT 90F/HR TO 1148F
1148 F(620 C), 08 HR — AIR COOL

HOT TENSILE TESTED @ 1200 F(649 C)

(T)RANSVERSE (L)ONGITUDINAL	L
YIELD STRENGTH, (0.20 %) MPA(KSI)	941(136.5)
TENSILE STRENGTH, MPA(KSI)	1110(161.0)
ELONGATION IN 1.00", %	34.0
ELONGATION IN 1.25", %	29.5
REDUCTION OF AREA, %	56.0

GRAIN SIZE PER ASTM E112: 10 (KALLINGS NO.2)

CONTINUED ON NEXT PAGE

FORM E2-3466

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Fax : 01.30.50.93.46
Web: www.thyssenfrance.com Code NAF 515 C
Siret 562 068 155 00026
N° TVA FR30562068155

Nuance : ALLOY 718 RECUIT
Coulee : 973516 lot : W89858
Commande : BL :461194 Poste:01
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MAUREPAS ,FRANCE

SELLER / VERKÄUFER / VENDEUR

CARPENTER TECHNOLOGY EUROPE SA
RUE EDOUARD BELIN 11

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85864	W89858	06/11/19	1927.00

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE: 973516

MILL HEAT TREATMENT:

TYPE	SOLUTION ANNEAL
TEMP	1751F (955C)
TIME (BATCH FURNACE)	1.00 HOURS
QUENCH	WATER

CAPABILITY MACRO: ACCEPTABLE

CONTINUED ON NEXT PAGE

FORM EP-366

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HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE: 973516

PRODUCT DESCRIPTION: PYROMET 718 HIGH TEMP ALLOY SOLUTION ANNEALED GROUND
COMMODITY CODE: 7505.12.0000
PART NUMBER: 732 - Ø40MM

SPECIFICATION: SNECMA DMD 0424-22 CLASS AA REV N (10/29/98) EXCPT LTR
(11/15/16) PENDING
AMS 5662 REV N (06/ /16)
DIN EN 10204 TYPE 3.1 (01/ /05)

SIZE 40.00 MM(1.574800 IN.) RD BAR INGOT 4

HEAT CHEMISTRY(WT%):

C	MN	SI	P	S	CR
0.04	0.07	0.07	0.010	LT .001	18.35
NI	**MO**	**CU**	**CO**	**AL**	**TI**
52.59	2.88	0.08	0.38	0.56	0.89
CB	**TA**	**SE**	**MG**	**B**	**CB+TA**
5.16	LT .01	LT .0003	0.01	0.004	5.17
BI	**CA**	**FE**	**PB**		
LT .00003	LT .001	18.24	LT .0003		

CAPABLE OF PASSING FRACTOGRAPHY PER DMR 20.
CAPABLE OF PASSING FORGING TEST PER DMR 20.

INSPECTION CERTIFICATE 3.1 IN ACCORDANCE WITH EN 10204 AND DIN 50049

THE CHEMICAL ANALYSIS OF THIS HEAT HAS BEEN PERFORMED BY THE CARPENTER SPECIALTY ALLOYS CHEMICAL LABORATORY, (CODE NUMBER PRI 100004), WHICH WAS ACCREDITED TO THE ISO/IEC 17025.

MATERIAL MELTED AND MANUFACTURED IN THE U.S.A.

THIS HEAT MELTED BY THE VIM + ESR PROCESSES

HARDNESS AS SHIPPED, HBW - 224 (MIDRADIUS)

GRAIN SIZE PER ASTM E112: 10 (KALLINGS NO.2)

MICROSTRUCTURE ACCEPTABLE - FREE OF LAVES PHASE AND BANDING OF ACICULAR PHASE (KALLINGS NO.2)

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FORM F2-566

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