Alcoa Fastening Systems & Rings

ALCOA

Aerospace Products
Toulouse Operations

Accredited Nadcap
Materials Testing Laboratory
Nondestructive Testing
Heat treatment
Chemical

BSI REGISTERED
FM 83542
ISO 9001
EN/AS9100
ISO 14001

Bd du Grand Castaing-Roques
31128 Portet-sur-Garonne
Cedex (France)
Tel: 00 33 5 61 51 82 30
Fax: 00 33 5 61 51 60 78

ALCOA FASTENING SYSTEMS MECAERO S.N.C. BOULEVARD DU GRAND CASTAING 31120 ROQUES sur GARONNE France -	**DECLARATION DE CONFORMITE** ***CERTIFICATE OF COMPLIANCE*** ***(NFL00-015C)***	N° Déclaration *Certificat N°* CC163752 Nombre de feuilles *Number of page* 1/1

KLX INC. 10000 NW 15th TERRACE 33172-2756 MIAMI, FL ETATS UNIS	N°commande/*Purchase order N°* OWZF21		
	Qté Cdée/*Qty Ord.* 50,000	Poste/*Item* 1	Ar/*Acknow* 131412/1
	N°BL/Delivery *Note* 00176074	Date 22/05/2015	Qté/Qty ship. 12,570

Référence Article/*Manufacturer Reference*
FTASM00272 TK Fraisée 100° Ø 4.82

Référence Client/P*art Number* ASNA2001T3-4	Ind/*Rev* U

Lot de Fabrication/*Manufacturing Batch* 1146004	Lots matières/Material lots 8021 TA6V Diam. 4.64 mm

Renseignements particuliers, dérogations/special information, concessions

Déclaration de conformité / Certificate of compliance (NFL00-015C)

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 règlements 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 the specified requirements, and applicable standards and regulations.

AIRBUS SAS APPROVAL N° 30289

BAE SYSTEMS N° BAE/AG/30394/MAA

CONTROLE FOURNISSEUR - *SUPPLIER INSPECTION* Nom/*Name:* k002: KERRIEN Hubert Fonction: responsable contrôle Date : 22/05/2015 Signature:	Surveillance:

Document validé par signature électronique

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RAPPORT D'ESSAIS
Test Report

Code OTAN/NSCM : F7411
Manufacturer: MECAERO (Head marking:M)

OF:1146004 Rev:0 ===>

Réf. Client / *Customer part number*	Quantite du lot / *Lot Quantity*
ASNA2001T3-4 Rev.:U	12,570.00
Réf. Produit / *Part number*	Spécification / *Product specification*
FTASM00272	NAS621 Rev.: 13

Matières premières / *Raw material*

N° Lot *Lot n°*	N°Lot Mat. *Batch n°*	Désignation *Designation*
1146004	8021	TA6V Diam. 4.64 mm

Traitement thermique / *Heat Treatment*

N° Cde *Order n°*	Désignation *Designation*	Spécification *Specification*	Rev
	TREMPE TA6V SHAKER(C-Ø<=6) (AMS)	TH0792	1
	VIEILLISSEMENT TA6V (C-Ø <=6) (AMS)	TH0792	1

Epaisseur Traitement de surface/ *Plating Thickness*

Spec.	
Rev	
Echantillon/*Sample*	
Epaisseur/*Thick Zone A*	
Epaisseur/*Thick Zone B*	
Epaisseur/*Thick Zone C*	
Notes	CETHYL ALCOOL
Visa	

Dureté/*Hardness*

Spec.	
Rev	
Mini - (Maxi)	
Echantillon/*Sample*	
Dureté/*Hardness*	
Dureté/*Hardness*	
Dureté/*Hardness*	
Notes	
Visa	

	Dimensionnel/ *Dimensional*	Visuel/*Visual*
Spec.	plan	plan
Rev	U	u
Echant./*Sample*	315	315
Résultat/*Result*	Conforme	Conforme
Notes		
Visa	z840	z840

	Magnétoscopie/ *Magnetic particle*	Ressuage/ *Fluorescent penetrant*
Spec.		NAS621
Rev		13
Echant./*Sample*		315
Résultat/*Result*		Conforme
Notes	N/A	
Visa		B002

Notes

Résultats d'essais attestés par:
Test results reviewed by .....:
responsable laboratoire
Q001: QUIE Eric

DATE
19/05/2015

Signature

Traction/*RT tensile*

		Double Cisaillement /*Double shear*
Spec.		
Rev		
Mini - (Maxi)		
Unité/*Unit*		
Notes	N/A	N/A
Mach/*Test mach*		
Visa		

RESULTATS/*RESULT*		RESULTATS/*RESULT*
Valeur/*Value*	Location	Valeur/*Value*

Document validated by electronic signature

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The recording of false, fictitious, or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

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RAPPORT D'ESSAIS
Test Report

Code OTAN/NSCM : F7411
Manufacturer: MECAERO (Head marking:M)

OF:1146004 Rev:0 ===>

Traitement de surface - Sous traitance / Surface treatment- Sub contract

N°Cde/*Order n°*	Désignation/*Désignation*	Spécification/*Specification*	Rev
	OXYDATION ANODIQUE SULFURIQUE	TSO023	12
	CETHYL ALCOOL	A/DET0013	D

Essais sous-traités / *Sub-contracted tests*

	Test(1)	Test(2)
Test		
Labo.		
Certificat N°		
Notes		

Micro/Macro

Spec.	NAS621
Rev	13
Echantil./*Sample size*	15
Surf.Contaminée/ *Surface contamination*	Conforme
Taille de grain/ *grain size*	N/A
Macro structure	Titanium Base A9
Micro.study	Titanium base A6
Magnification	x 200
Broach crack	
Discontinuités/ *Discontinuities*	Conforme
I.G.A	
N°Archive	29 Z 9
Visa	Q001
Notes	P004

Essai sur éprouvette/*test on specimen*

Spec.				
Rev				
Echantil./*Samples*				
R				
E 0,2%				
A%				
Z%				
Notes	N/A			
Visa				

	Fatigue/*Fatigue*	**Fluage/*Stress rupture***
Spec.		
Rev		
Echantillon/*Samples*		
Test temp(fluage)		
Notes	N/A	N/A
Machine/*Test mach*		
Visa		
Charge mini/*Low load*		
Charge maxi/*High load*		
Cycles mini/*Min cycles*		
Cycles moy/*Ave.cycles*		
Cycles max/*Max cycles*		

Location	Valeur/Value (Cycles)	Location	Valeur/Value (Cycles)

Valeur (heures) /*Value (hours)*	

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8021

PRODUCT CERTIFICATION

DYNAMET
A Carpenter Company

195 Museum Road
Washington, PA 15301

Phone 724.228.1000
Fax 724.228.4195

WORK ORDER	SALES ORDER / RLS
094318	051321 / 001

SOLD TO

Carpenter c/o AFS Mecaero
Rue Edouard Belin 11
Mont-Saint-Guibert, 1435
Belgium

Quality System is registered
to ISO 9001:2008 and AS9100:2009

CUSTOMER P.O.	CUSTOMER PART	QUANTITY	LADING NO	SHIPMENT DATE
MECAERO151827	AU1MTCCM00010	834 lbs	00072259	01/15/2015

PART INFORMATION 111DB3EZA01827
Ti 6AL 4V Fastener Quality Dynalube Coil - 4,64 mm (0.1827") Dia.

Specifications: MPM 702 Per Exceptions Rev: 7; AMS 4928 Rev: U; AMS 4967 Rev: L; MPM 000 Rev: 03; QRQL002 Rev: 05
Size: 4,64 mm (0.1827") Dia. +0,03 mm / -0 mm (+0.001"/ -0"

Chemical Report (Wt.%)

Heat	Al T / Al B	C T / C B	Fe T / Fe B	N T / N B	O T / O B
8R35012	6.06 / 6.09	.013 / .012	.19 / .18	.010 / .010	.16 / .15

V T / V B	Y T / Y B	Ti	Ot E	TOE
3.95 / 3.91	<.005 / <.005	BAL	<.05	<.20

Hydrogen by Tag Number - As Shipped (Wt. %)

Tag Nbr	H(T) / H(W)
8R35012-018A	.0032 / .0028
8R35012-018B	.0036 / .0030
8R35012-019A	.0029 / .0029
8R35012-019B	.0029 / .0028
8R35012-020A	.0029 / .0030
8R35012-020B	.0029 / .0029

As Shipped Properties

UTS #1 (Mpa)	YS 0.2% #1 (Mpa)	EL #1 (%)	RA #1 (%)
1007	859	24.3	51
UTS #2 (Mpa)	**YS 0.2% #2 (Mpa)**	**EL #2 (%)**	**RA #2 (%)**
997	850	21.2	51

Stress Rupture #1
1172 Mpa greater than 5hrs.(PASSED)
Stress Rupture #2
1220 Mpa greater than 5hrs.(PASSED)

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MECAERO151827	AU1MTCCM00010	834 lbs	00072259	01/15/2015

Capability@1750°F (954°C) 1hr WQ +1000°F (538°C) 4hrs AC

UTS #1 (Mpa) 1235	YS 0.2% #1 (Mpa) 1134	EL #1 (%) 14.4	RA #1 (%) 53
UTS #2 (Mpa) 1217	YS 0.2% #2 (Mpa) 1128	EL #2 (%) 14.4	RA #2 (%) 53

Capability@1652°F(900°C) 45min WQ +932°F(500°C) 5hrs AC

UTS #1 (Mpa) 1152	YS 0.2% #1 (Mpa) 1050	EL #1 (%) 13.9	RA #1 (%) 40
UTS #2 (Mpa) 1177	YS 0.2% #2 (Mpa) 1067	EL #2 (%) 14.2	RA #2 (%) 43
Shear 0° #1 (Mpa) 708	Shear 90° #1 (Mpa) 706	Shear 0° #2 (Mpa) 726	Shear 90° #2 (Mpa) 713
Shear 0° #3 (Mpa) 723	Shear 90° #3 (Mpa) 726		

Capability@1750°F (954°C) 45 Min WQ + 899°F (482°C) 5 hrs

UTS #1 (Mpa) 1292	YS 0.2% #1 (Mpa) 1169	EL #1 (%) 22.7	RA #1 (%) 40
UTS #2 (Mpa) 1270	YS 0.2% #2 (Mpa) 1153	EL #2 (%) 18.6	RA #2 (%) 40

Metallography Results

Microstructure
Alpha/Beta
Pub. ETTC 2
A2

Material Data

Melt Origin
USA

Melt Source
RTI Niles

Bt Tr °F
1830

Bt Tr °C
999

Certification Information

As Shipped Condition

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CUSTOMER P.O.	CUSTOMER PART	QUANTITY	LADING NO	SHIPMENT DATE
MECAERO151827	AU1MTCCM00010	834 lbs	00072259	01/15/2015

Annealed 1450°F (788°C) 1 Hr. A/C.

CERTIFICATION REQUIREMENTS

Material free of Alpha Case.
Material tested in 6D gage length.
Hydrogen analysis taken from final product.
Material free of mercury and radioactive contamination.
In lieu of ultrasonic testing at billet eddy current testing and metallographic review was performed on wire product.All accepted.

Jamie L Burrows
Jamie L. Burrows
Administrator II - Quality

End of Certification

This is to certify that the above test results are correct as contained in the records of the company.

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8021

FORM 44A REV 1/7/10

TEST REPORT

RTI International Metals, Inc.

☒ RTI NILES
1000 WARREN AVE.
NILES, OHIO 44446

DATE	SALES ORDER NO.	GRADE	PACKING LIST NO.
3/19/13	177995	6AL-4V	80358434

CUSTOMER NAME, ADDRESS: AIRBUS (DYNAMET)

CUSTOMER ORDER NO.: 3179390

MATERIAL: BETA FORGED & CONDITIONED TI BLOOM

SPECIFICATION: DYNAMET SPECIFICATION DI-2111 REV. B DTD 2/5/09,
DYNAMET SPECIFICATION DI-1036 REV. B DTD 9/8/08

IDENTIFICATION & REFER	INGOT NO	LOT	S-R
MATERIAL NUMBER	8R35012	01	00
PRODUCTION ORDER	30172917		

CHEMISTRY: ☒ INGOT (AVERAGE of TOP-CENTER-BOTTOM) ☐ INGOT (AVERAGE of TOP-BOTTOM) ☐ FINAL PRODUCT

ELEMENT	TOP	CENTER	BOTTOM
C	.013	.016	.012
N	.010	.010	.010
Fe	.19	.20	.18
Al	6.06	6.10	6.09
V	3.95	3.98	3.91
O	.16	.16	.15
Y	<30 PPM	<30 PPM	<30 PPM
B	<30 PPM	<30 PPM	<30 PPM
Cu	.005	.005	.005
Si	.021	.022	.021
Ni	.006	.006	.005
TI	BALANCE		
FINAL PRODUCT	OXY		
	HYD(PPM)	T1	10

TEST INFORMATION

TEST	LAB
All	RTI-Niles, Niles, OH

RESIDUAL ELEMENTS, EACH <.05%
RESIDUAL ELEMENTS, TOTAL <.20%

CHEMISTRY TEST METHODS:
ALLOY CHEM: SPARK OES
O2/N2: ASTM E 1409
HYDROGEN: ASTM E 1447
CARBON: ASTM E 1941
*H2 PER FPA # 1E

(AT M.R.) 1/4" BELOW SURFACE: T1 24 B1A 36*

FRACTURE TOUGHNESS KSI √ IN

Specimen Size:

ID	Toughness #	Val. Ck.

B1A 12*

PROPERTIES							
ULTIMATE KSI	L	/	/	/	/	/	/
	T	/	/	/	/	/	/
YIELD (.2%) OFFSET	L	/	/	/	/	/	/
	T	/	/	/	/	/	/
% ELONGATION (INCHES)	L	/	/	/	/	/	/
	T	/	/	/	/	/	/
% REDUCTION IN AREA	L	/	/	/	/	/	/
	T	/	/	/	/	/	/
BEND 105	L	/	/	BEND 180	/	/	/
	T	/	/	STATIC NOTCH	/	/	/
HARDNESS							
BETA TRANSUS	DTA: T1 1825°F± 10°F B1A 1835°F± 10°F						
CREEP							
ULTRASONIC							
HEAT TREAT/ TEST FORGE							

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SHIPPING	
NO. OF PIECES	6
WEIGHT (LBS)	15,300
SIZE (IN)	9.00 X RCS X R/L
TEST PIECES	X X

THIS IS TO CERTIFY THAT THE ABOVE TEST RESULTS ARE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY AND CONFORM TO ORDER REQUIREMENTS

OTHER DATA:

DROP SHIP TO DYNAMET IN ACCORDANCE WITH AIRBUS MAT/CON/353.
INGOT WAS MELTED AT RTI ALLOYS, TPD, CANTON, OHIO, USA. MELT METHOD: 2X VAR.
SPONGE SOURCE: SITIX MELT DATE: 1/24/13
MATERIAL IS FREE OF MERCURY, RADIUM, ALPHA SOURCE AND LOW MELTING OR ALLOY CONTAMINATION.
RTI CERTIFIES THAT ALL PROCESSING PERFORMED AT RTI-NILES IS FREE OF RADIOACTIVE CONTAMINATION.
MATERIAL HAS NO WELD REPAIR.
MATERIAL PRODUCED & CONTROLLED IN ACCORDANCE WITH FIXED PROCESS AGREEMENT RTI/DYNAMET #1E DTD 7/22/11 AND MELTING TO RTI/DYNAMET #3D DTD 3-30-10.

NAME/TITLE: WILLIAM A COLLETTA JR, CERTIFICATIONS SPECIALIST/ith

SIGNED: W A Colletta

DATE: 12-11-14

8021

FORM 44A REV. 1/7/10

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DATE	SALES ORDER NO.	GRADE	PACKING LIST NO.
3/19/13	177995	6AL-4V	80358434

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SPECIFICATION: DYNAMET SPECIFICATION DI-2111 REV. B DTD 2/5/09, DYNAMET SPECIFICATION DI-1036 REV. B DTD 9/8/08

IDENTIFICATION & REFER	INGOT NO	LOT	S-R
MATERIAL NUMBER	8R35012	01	00
PRODUCTION ORDER	30172917		

REISSUE INFORMATION

REASON	DATE	NAME - SIGNATURE
REISSUED TO ADJUST WEIGHT TO ACCOUNT FOR SCRAP	6/12/14	REBECCA FILSON
REISSUED TO ADJUST WRIGHT AND PIECE COUNT TO ACCOUNT FOR CONVERSION MATERIAL	12/11/14	REBECCA FILSON
REISSUED TO ADJUST WEIGHT	12/11/14	WILLIAM A COLLETTA JR
		DALA CHAN 12-11-14

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BORDEREAU DE LIVRAISON
DELIVERY NOTE

MECAERO - SNC au capital de 3.147.375 Euros
301 774 [illegible] R.C.S. Toulouse
[illegible]

ADRESSE DE LIVRAISON / *SHIPMENT ADDRESS*
FLX Inc.

NORDPORTBOGEN 6
22848 NORDERSTEDT
ALLEMAGNE

DATE	N°BL	N°A.R.C.	Code Client
02/05/14	2012 6074	131412	FA106004

PORT [illegible]

VOTRE COMMANDE / *YOUR ORDER*	
Référence / *Reference*	Date / *Date*
OW2F21	19/03/2014

TRANSITAIRE / *FORWARDER*
FEDERAL EXPRESS TOULOUSE
31 TOULOUSE
FRANCE

TRANSPORTEUR / *CARRIER*
FEDERAL EXPRESS
France

PREAPO	DESIGNATION	QTE CDEE *Ordered Qty*	QTE LIVREE *Delivery Qty*	UNITE	N°lot/série *Batch Number*	POIDS NET *Net Weight*
	ASNA2061T3-4	50000	12520 Accepté	PCE	1146794	[illegible]
	[illegible]	[illegible]				

SURVEILLANCE	DOCUMENTS JOINTS	POIDS NET TOTAL	NOMBRE DE COLIS
	CC+P+TP	16.50 KG	4