

Cert # 45355 Cert Date: 01/26/10 LOT #: 48601 Page: 1

Cust # 2180

P.O. #: 1210186

Customer: INTERTURBINE AVIATION
LOGISTICS GMBH

P.O. Qty: 25000

Ship To: GRAND PRAIRIE, TX.

Ship #: S-00035148

Ship Qty: 25000

Part #: NAS1102E08-5

MFG. Part #: NAS1102E08-5 REV.9

Material Spec: AMS5737P

Heat #: QH750B/24

Type: A286

Mill, Vendor: ARCELOR/CENTRAL WIRE

Code: 12322

Procure Spec: NAS4003 REV.9

Shear per NASM1312-13 or -20

Minimum Requirement: 95000 P.S.I.

Load	Load	Load	Load	Load
120246	123183	124203	124463	122093
121620	124263	123305	122825	122446

Metallurgical Tests

Hardness: N/A

Grain Size: 6 Decarb: N/A

Metallurgical, Special Process and Subcontracted Test Information

THREADS INSPECTED PER MIL-S-8879C N.3, AS8879D OR MIL-S-7742D A 17L

MAG PERM <2.0 PER ASTM A 342/A 342M 04 MET.3

MACRO AND MICROSTRUCTURE SATISFACTORY 6 PCS

HEAT TREAT PER AMS2759/3E BY VARCO #92713

PASSIVATE PER AMS2700C MET.1 TY2 BY ACTIVE #93173

DEARS 252.225-7014 ALT 1 ONLY AS IT APPLIES PER P.O.

BATCH NO.
GRAND PRAIRIE

BA 82641

THIS TEST CERTIFICATION SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF 3-V FASTENERS CO., INC. TESTING LABORATORY.

THIS CERTIFICATION SHALL NOT BE USED BY THE CUSTOMER TO CLAIM PRODUCT ENDORSEMENT BY ANY AGENCY OF THE U.S. GOVERNMENT.

3-V FASTENERS CERTIFIES THAT THE PRODUCT SHIPPED ON ABOVE PURCHASE ORDER WERE MANUFACTURED, INSPECTED AND TESTED IN COMPLIANCE WITH ALL APPLICABLE PRINTS AND SPECIFICATIONS. ALL SUPPORTING DOCUMENTATION IS ON FILE AT 3-V. REGISTERED ISO 9001:2000 + AS9100 SAI GLOBAL CERT-0028150, GAGE CODE 1ER65, BAE APPROVAL BAE/AG/30148/CAL, AIRBUS APPROVAL 30085.

QUALITY ASSURANCE LAB SUPERVISOR

DANIEL E. HENSON

3V FASTENERS CO., INC.		FINAL INSPECTION REPORT			PG 1 OF 2	
PART NUMBER	REV.	LOT #	LOT SIZE	SAMPLE SIZE		
NAS1102E08-5	9	48601	26519	315>20		
DESC: OFFSET CRUCL. F/H F/T		PRINT NUMBER		SAMPLING PLAN		
8/32 X .312		NAS1102		NAS4003 TBL XII / S-3		
PRINT CHARACTERISTIC	PRINT REQ.	ACTUAL	ACC.	REJ.	GAGE EQUIPMENT	
HEAD MARKING	E 08 LOGO	E 08 LOGO	✓		VISUAL/10X	
LENGTH $\pm .000$ $-.031$	.312-.281	.302-.299	✓		CALIPER	
THREAD PITCH DIA.	.1437-.1415	.1428-.1423	✓		TRI-ROLL	
THREAD FUN. DIA.	.1437-.1415	.1430-.1423	✓		TRI-ROLL/RING GAGE	
THREAD MAJOR DIA.	.1640-.1580	.1632-.1611	✓		MICROMETER	
THREAD ROOT RADIUS	.0056-.0047	.0050-.0049	✓		OPTICAL COMPARATOR	
THREAD MINOR DIA.	.1279-.1238	.1262-.1258	✓		TRI-ROLL/OPT.COMP.	
GRIP LENGTH	N/A	N/A	—		CALIPER/OPT.COMP.	
GRIP DIAMETER	.164 MAX.	<.164	✓		MICROMETER/OPT.COMP	
HEAD DIMENSION	.270 ABS MIN.	>.270	✓		CALIPER	
THEO SHARP	.332-.319	.329-.327	✓		OPTICAL COMPARATOR	
LAND HEIGHT	.020-.010	.016-.012	✓		OPTICAL COMPARATOR	
RADIUS UNDER HEAD	.020-.010	.020-.016	✓		OPTICAL COMPARATOR	
PROT HEIGHT (.2671)	.0268-.0240	.0266-.0245	✓		HEIGHT STAND	
SOCKET/RECESS DEPTH	.078 MAX.	<.078	✓		HEIGHT STAND	
SOCKET/RECESS WIDTH	.215 MAX.	<.215	✓		CALIPER/PIN GAGE	
SOCK./RECESS GAGING	.0595-.0480	.0555-.0510	✓		PENETRATION GAGE	
FIN THD, B/S, RAD, GRIP	32/RA MAX.	<32/RA	✓		COMPARATOR GAGE/10X	
FIN. ALL OTHERS	125/RA MAX.	<125/RA	✓		COMPARATOR GAGE/10X	
BURRS/SHARP EDGES	NONE ALLOWED	NONE	✓		VISUAL/10X	
BEARING SURF. SQ.	N/A	N/A	✓		OPTICAL COMPARATOR	
HEAD ANGLE	101-99 DEG.	100-99	✓		OPTICAL COMPARATOR	
INSP. PERFORMED & ACCEPTED BY: <i>C.M. Short</i>			DATE: 1-21-10			
REPORT PREPARED BY: DAN HENSON			DATE: January 28, 2009 46929			

FORM 11-1, REV 5 03/17/98

BATCH NO.
GRAND PRAIRIE

BA 82641

BA82641 3023560 SB3076117

FORM 11-2, REV 5 03/17/98

BATCH NO.
GRAND PARRIE

DA 82641

BA82641 3023560 SB3076117



3V
INSP
07

TERMS: net 30

[illegible]

MATERIAL / HEAT TREAT / STATUS OF PARTS

PASSIVATE 104 EGIN-1017-REV 07/ANS22600 METHOD 1 TYPE 2

Other

MAGNETIC SPECIFICATIONS

Acceptance Criteria

[illegible]

Reason Rejected

FLUORESCENT PENETRANT SPECIFICATIONS

Acceptance Criteria

[illegible]

Reason Rejected

GE NOT Level 24 R YES HERNANDEZ

This test certification shall not be reproduced except in full. This certification shall not be used by the customer to claim product endorsement by any agency of the U.S. government. Active Magnetic Inspection certifies that the product shipped on the above certification were processed, inspected & tested in compliance with all applicable prints & specifications. All supporting documentation is on file at Active Magnetic Inspection.

ORIGINAL CERTIFICATION TEST REPORT

Varco Heat Treating Company
Certification

Order No.: 138183 - 1

Date: 12/09/2009

Entry Date: 12/02/2009

Page: 1 of 1

To: 3VFAST
3V FASTENERS
320 REED CIRCLE

CORONA CA 92879

Purchase Order No.: 92713

Packing List No.:

Material: A-286

Varco Heat Treating is a NADCAP accredited company and complies with ISO 9002.

Quantity	Part Number / Part Name / Part Description	Pounds
26,815	NAS1102E08-5 ROUTER NO. 48601 (4 BARS) 1 PAN	48
52,044	NAS1102E08-8 ROUTER NO. 48476 3 PAN	140

Heat treating specification: AMS 2759/3E, CONTROLS ONLY

Insp. Type	Scale	Minimum	Maximum	Number	Other
Customer Requirements:					
Hardness	HRC	34.			160-180 KSI
Results:					
Hardness	HRC	36.	42.		

Process Steps

Step: 1 Process: Age Equipment #: 2V
1325 F for 16 hours minimum. Nitrogen quench.

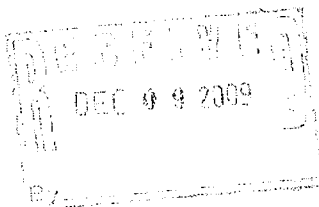
Step: 2 Process: Inspect Equipment #:
Test and record hardness. (Sample only)

Amount tested: 10

Step: 3 Process: Blast Equipment #:
Glass bead blast in bulk.

TEL
P.O. NO.
GRAND PRAIRIE

BA 82641



The processing of the material furnished was in conformance to the requirements of the purchase order.

Richard R. Hatt
Quality Control Manager
Varco Heat Treating Company

Registered under Interturbine Aviation Logistics Batch-Nr:
BA82641 3023560 SB3076117

PERTH, ON
ERIN, ON
DUMAS, AR
LANCASTER, SC

813-267-3752 FAX 813-267-5817
519-833-9632 FAX 519-833-2215
870-382-2580 FAX 870-382-6908
803-283-3353 FAX 803-283-6303



UNION, IL
HOUSTON, TX
PERRIS, CA

815-923-2131 FAX 815-923-2126
713-466-1000 FAX 713-466-7425
951-657-2105 FAX 951-943-6061

THE LEADING MANUFACTURER OF STAINLESS STEEL, NICKEL AND COPPER ALLOY WIRE PRODUCTS
EXECUTIVE OFFICES: PERTH, ON CANADA - EMAIL sales@centralwire.com

PERRIS SERVICE CENTER
2500 "A" STREET
TEL: 909-657-2105

PERRIS, CA 92570-9361
FAX: 909-943-6061

CERTIFICATE OF CONFORMANCE

SOLD
TO

3V FASTENERS
320 REED CIRCLE
CORONA,



CA 92879-1349

SHIP
TO

3V FASTENERS
320 REED CIRCLE
CORONA,

CA 92879-1349

CUSTOMER'S PO NO.	TYPE OF CERT	CUSTOMER	ORDER NO.	WORK ORDER	DATE SHIPPED
16032	Customer	129433	GRAND 4090893		11/12/09

SPECIFICATIONS:

M-001-S/S
10%CR, AMS 5853C
CAPABLE OF AMS 5731L, AMS 5732J, AMS 5734K, AMS 5737F

BA 82641

ITEM DESCRIPTION

DESCRIPTION	SPEC. CLASS	HEAT
Cold Heading A286 1/4 HARD Seam Free .1420 Coils Std. Techcote	Melt mill ArcelorMittal Country of origin FRANCE	QH750B/24
3 coils 11-12-09 SK	QTY SHIP 557	005

Stack

CHEMICAL ANALYSIS

C .04	MN 1.48	SI .09	P .017	S <.001	CR 14.79	NI 24.52
MO 1.24	CU .14	CO .14	AL .20	TI 2.30	FE Balance	B .007
V .30	BI <.00002	PB <.0001				

89575

MECHANICAL PROPERTIES

AS SHIPPED PROPERTIES:

TENSILE 101.300 KSI	GRAIN SIZE 6.000 ASTM					
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AFTER HEAT TREAT PROPERTIES:

S/RUPTURE: MILL CAPABILITY

TENSILE 168.200 KSI	YIELD 137.600 KSI	ELONGATION 21.000 %	R/A 49.000 %	S/RUPTURE 1200.000 DEG F	TIME 103.200 HRS	ELONGATION 36.700 %	LOAD 70.000 KSI
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WE HEREBY CERTIFY THAT THE SAMPLES REPRESENTATIVE OF THIS MATERIAL MEET
THE REQUIREMENTS OF THE SPECIFICATION(S) IN WHICH IT WAS PURCHASED.
/ * DFAR 252.225.7014 ALT I COMPLIANT *

/ RON MATUEWEZSKI, QUALITY CONTROL SUPERVISOR

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.

Very truly yours,

AUTHORIZED SIGNATURE

ArcelorMittal

Usine - Works - Werk
Stainless & Nickel Alloys Wire
BP4 - 58160 IMPHY FRANCE
Tel : 03 86 21 36 03
Fax : 03 86 21 31 14

CERTIFICAT DE RECEPTION
Inspection certificate - Abnahmeprüfzeugnis

TYPE 3-1 according to EN 10204 : 2004



ISO 9001
ISO 14001
AQAP 2120
EN 9100
ISO 16949



2000
2004
2003
2002

n°C057389/2
12322

Date of expiration
15 June 2009
23 Sept 2009

Client
Customer
Kunde : **TECHALLOY UNION**
V Commande
Your order
Ihre Bestell. Nr : **2006486**
Spécification
Specification
Vorgabe : **D.3.PRS.010.S ORIG.**

dt
Of : **09.22.08**
Von

N°Référence
Our reference
Unser Auftrag Nr. : **950431/01**

Produit
Product
Erzeugnisform : **HO 286 WIRE ROD**
DIAM/7.5000/MM
SS A286 (.295")

Etat de livraison
Condition of delivery:
Lieferzustand

SHAVED

N°de fabric.
Manufact. Nr
Fabrik. Nr : **4100129428**

Poids
Weight
Gewicht : **3031.330 LB**

Nombre
Part. No
Stückzahl

4 PI

COMPOSITION CHIMIQUE (% poids)
CHEMICAL COMPOSITION (% weight)
CHEMISCHE ZUSAMMENSETZUNG (% Gewicht)

Coulée N°
Heat Nr
Schmelze Nr

QH750b/24

C	Mn	Si	S	P	Ni	Cr	Mo	Cu	Co
.04	1.48	.09	< .001	.017	24.52	14.79	1.24	.14	.14
V	Al	Ti	Pb	Bi	B	Fe			
.30	.20	2.30	< .0001	< .00002	.007	bal.			

CARACTERISTIQUES MECANQUES ET AUTRES ESSAIS / TESTS RESULTS

ETAT DE LIVRAISON
CONDITION OF DELIVERY

RESISTANCE..... TENSILE STRENGTH..... **593 MPA (86,000)**
GRAIN ASTM..... SIZE ASTM..... **6/7 ASTM**

HYPERTREMPE 980°1H EAU+VIEILLISSEMENT 720°16H AIR
HEAT TREATMENT OF SPECIMEN 1800°F1H WATER+1325°F 16H AIR

LIMITE ELASTIQUE..... YIELD STRENGTH 0.2%..... **731 MPA**
RESISTANCE..... TENSILE STRENGTH..... **1124 MPA**
ALLONGEMENT..... ELONGATION SUR AO..... **29.6 %**
STRICTION..... RED. OF AREA..... **55.0 %**
DURETE HB..... HARDNESS..... **314 HB**

FLUAGE

STRESS RUPTURE TEST AT 1200°F (649°C)

AT 70,000 PSI (483MPa)

DUREE DE VIE..... TIME..... **103.2 H**
ALLONGEMENT..... ELONGATION..... **36.7 %**

IL
BUREAU
GRANDPRAIRIE

BA 82641

QUALITY MANAGER

J-C. ESTOUP

Signature
Signature
Unterschrift

01.06.09

Voir page suivante

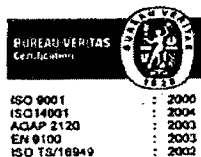
PAGE N° : 1

ArcelorMittal

Usine - Works - Werk
Stainless & Nickel Alloys Wire
BP4 - 58160 IMPHY FRANCE
Tel : 03 86 21 36 03
Fax : 03 86 21 31 14

CERTIFICAT DE RECEPTION
Inspection certificate - Abnahmeprüfzeugnis

TYPE 3-1 according to EN 10204 : 2004



12322
n° C057389/2

Dates of expiration

15 June 2009

23 Sept 2009

Client : TECHALLOY UNION
Customer :
Kunde :
//Commande : 2006486
Your order :
Ihre Bestell. Nr :
Specification : D.3.PRS.010.S ORIG.
Specification :
Vorschrift :

du : 09.22.08
of :
von :

N°Référence : 950431/01
Our reference :
Unser Auftrags Nr. :

ETAT HYPERTREMPE 900° + VIEILLISSEMENT 720°16H AIR
HEAT TREATMENT OF TEST SPECIMEN 1550°F 1H WATER+1325°F16H AIR

LIMITE ELASTIQUE.....	YIELD STRENGTH 0.2%.....	800 MPA
RESISTANCE.....	TENSILE STRENGTH.....	1142 MPA
ALLONGEMENT.....	ELONGATION SUR 40.....	27.9 %
STRICTION.....	RED. OF AREA.....	52.0 %
DURETE HB.....	HARDNESS.....	319 HB

FLUAGE

STRESS RUPTURE TEST AT 1200°F (649°C)

AT 65.000 PSI (449MPA)

DUREE DE VIE.....	TIME.....	163.4 H
ALLONGEMENT.....	ELONGATION.....	51.5 %

"MATERIAL IS FREE FROM MERCURY, RADIUM,
OR ALPHA PARTICLE CONTAMINATION

ITL
BATCH NO.
GRAND PRAIRIE

"THE WILLFUL RECORDING OF FALSE OR FRAUDULENT
STATEMENTS ON THIS DOCUMENT MAY RESULT IN
PUNISHMENT AS A FELONY UNDER FEDERAL STATUTES" BA 82641

"MELTING PROCESS : EF + VAR"
"NO WELDING WITH FILLER METAL HAS BEEN PERFORMED"
"STRESS RUPTURE AND AGE HARDENING AND CHEMISTRY TO MEET
LATEST ISSUE OF AMS 5731, AMS 5732, 5734 AND 5737"
ARCELORMITTAL STAINLESS NICKEL ALLOYS WIRE CERTIFIES THAT THIS
MATERIAL WAS MELTED/PRODUCED IN FRANCE, QUALIFYING COUNTRY,
AS REQUIRED BY DFARS 252.225-7014



ITL
BATCH NO.
GRAND PRAIRIE

BA 02487



P.O. Box 025263, Miami, FL 33102-5263 • Tel: 305.925.2600 • Fax: 305.507.7191
Plant Location: 10000 N.W. 15th Terrace, Miami, FL 33172 • SITA: MIAMMCR
www.KLXAerospace.com

Shipped From: KLX INC., 4 LOYANG LANE #05-01, SINGAPORE 508914

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 KLX Aerospace Solutions.

FIRM: AJ WALTER AVIATION LTD

PURCHASE ORDER#: CP15635

QUANTITY	U/M	PART-NUMBER	CUST REF#	LOT-NUMBER	Eff Date	EXP DATE
100	EA	NAS1102E08-5		48601		



Jason Lewis
Senior Director, Global Quality

02/18/16

Inv # 02/18/16