

MATERIAL TRACEABILITY

SALES ORDER NO.

509.8-11

DRWG. NO.

15770A

Nozzles:

Purpose	Dia. or Size	Material	Nozzle Thk. Nom.	Trace Code
B OUT	6.625	SB-241-5083	0.432	T105C
C OUT & E OUT	3.500	SB-241-5083	0.216	T109C
A OUT	8.625	SB-241-5083	0.322	T113C
C IN & D OUT	4.500	SB-241-5083	0.237	T119C
D IN	2.375	SB-241-5083	0.154	T138C
B IN	6.625	SB-241-5083	0.432	T139C
A IN & F OUT	12.750	SB-241-5083	0.375	T151C
E IN	1.900	SB-241-5083	0.145	T156C
F IN	10.750	SB-241-5083	0.365	T175C
G IN&OUT	14.000	SB-209-5083	0.250	S472C

Headers:

Purpose	Material	Nom. Thk.	Trace Code
E IN	SB-241-5083	0.203	T007C
C OUT & D IN	SB-209-5083	0.375	S407C
A IN & E OUT	SB-209-5083	0.375	S408C
B OUT & C IN	SB-209-5083	0.750	S409C
A OUT, F IN&OUT, & G IN&OUT	SB-209-5083	0.250	S472C
D OUT	SB-209-5083	0.500	S483C
B IN	SB-209-5083	1.000	S504C

End Pieces:

Purpose	End Type	Material	Nom. Thk.	Trace Code
B IN	MITER	SB-209-5083	1.000	S374C
E IN, F IN&OUT, & G IN	FLAT	SB-209-5083	0.375	S408C
B OUT & C IN	MITER	SB-209-5083	0.750	S409C
C OUT & D IN	FLAT	SB-209-5083	0.625	S422C
D OUT	FLAT	SB-209-5083	1.000	S460C
A OUT & G OUT	FLAT	SB-209-5083	0.500	S477C
A IN, B IN, & E OUT	FLAT	SB-209-5083	1.000	S504C

Permanent End Closures:

Purpose	End Type	Material	Nom. Thk.	Trace Code
A OUT	FLAT	SB-209-5083	0.625	S422C

THE MATERIAL CERTIFICATION USED IN THE FABRICATION OF THE CORE OF THE ABOVE ASSEMBLY CONTAINS RESTRICTED INFORMATION.

THEREFORE IT IS COMPANY CONFIDENTIAL, AND CANNOT BE DIVULGED TO THE CUSTOMER OR ANY THIRD PARTY.

ALL MATERIALS USED MEET THE SPECIFICATIONS AND THE MANUFACTURING CODE AS STATED ON THE DRAWING.


 Traci A. Leis
 Documentation Coordinator

09/03/2004 14:45

16306902105

TW METALS

PAGE 03/15

Uelzener Weg 36 - 59425 Unna

Abnahmeprüfbescheinigung 3.1 B - EN 10204**Inspection Certificate 3.1 B - EN 10204 / Certificat de Reception 3.1 B - EN 10204****Kunde:**
Client:

Anvii Alloys International Ltd.

Unit 17, Fishers Ind. Est
Wiggenhall Rd Watford, Herts WD1 Great Britain**Zeugnisnummer:**

Cert No. / No. du certificat

Bestellnummer:

Order No. / No. de commande

Auftrag:

Our Reference/Notre Reference:

12968

8970/1

Pos* 248 5792

T-105-C

K11-20-04

Produkt:

Product / Produit:

Spezifikation:

Specification:

Werkstoff:

Alloy/Alliage:

Abmessung

Size / Dimension

Kennzeichnung

Marking/Marque:

Lieferung:

Delivered Material / Matériel délivré:

ASME SB 241

S083

169,280 mm x 146,340 mm x 10,970 mm x 6000,00 mm
6" NB Sched. 80

Cast No. 2158-2 - 6" NB SCH 80 - S083-0 - ASME SB 241 - AWU

Zustand:

Température

pcs.

lbs

6

1142

1. Chemische Analyse**Chemical Analysis / analyse chimique**

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
Charge/ min.				0,40	4,0	0,05							
Cast No. max.	0,40	0,40	0,10	1,0	4,9	0,25	0,25	0,15					
2158-2/04	0,199	0,297	0,027	0,515	4,620	0,076	0,045	0,023	0,003	0,0019	0,0002	0,0013	0,0020

Hydrogen content: 0,13 ccml/3120 g Al

Elements ohne Angabe < 0,01 % / Elements without indication < 0,01 %

2. Mechanische Eigenschaften**Mechanical Properties / Valeurs Mécaniques**

Anforderungen Requirements	tensile (Rm) Ksi	yield (Rp0,2) Ksi	elongation 2" %	elongation A S %	Hardness HB
min.	39,0	16,0	14,0		
max.	51,0				
1	46,835	27,260	18,5		72,3
2	45,820	25,970	17,5		71,8

AI
Reviewed

NOV. 2/2004

Reviewed

TUM Süddeutsche Bau und Betrieb GmbH

Notified Body for Pressure

Equipment Directive 97/23/EC

-Testing Laboratory- APR 18 2005

REVIEWED

NOV 20 2004

REP 01

**Ergebnis der
Prüfungen:**

Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

Test results:

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

Results:

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

03.06.2004

/ Sinda

Certified acc. to DIN EN ISO 9001:2000, valid until 2006-03-09
Certificate No.: 001959 QM

Der Werksachverständige

P. 07/12

83087983
08/0

07/30/04 07:50

86306900147

"TW Metals."

006/006

M83087187 7-30-04



Uetziener Weg 36 - 59425 Unna

Abnahmeprüfbescheinigung 3.1 B - EN 10204

Inspection Certificate 3.1 B - EN 10204 / Certificat de Reception 3.1 B - EN 10204

P82485792

Kunde:
Client:

Anvil Alloys International Ltd.

Unit 17, Finesse Ind. Est
Wiggenhall ReWarford, Herts WD1 Great Britain

Zeugnisnummer:

Cert No. / No. du certificat:

Bestellnummer:

Order No. / No. de commande:

Auftrag:

Our Reference/Motre Reference:

18003

8986/1

T-109-C
JUL 2004

Produkt:

Tubes drawn seamless

Produkt / Product:

Spezifikation:

ASME SB 241

Spezifikation:

Werkstoff:

5083

Alloy/Alliage:

Abmessungen:

98,900 mm x 77,920 mm x 5,490 mm x 6000,00 mm

Size / Dimension:

3" NB SCH 40

Kennzeichnung:

Cast No. 2083-1 - 3" NB SCH 40 - 5083 - 0 - ASME SB 241 - AWU

Marking/Marquage:

Lieferung:

Delivered Material / Matériau livré:

pcs.

18

lbs

917

1. Chemische Analyse

Chemical Analysis / analyse chimique

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
Charge/ min.				0,40	4,0	0,05							
Cast No. max.	0,40	0,40	0,10	1,0	4,9	0,25	0,25	0,15					
2083-1/04	0,160	0,274	0,029	0,530	4,685	0,070	0,850	0,023	0,004	0,0018	0,0001	0,0014	0,0020
Hydrogen content:	0,12 ccml/100 g Al												

Elemente ohne Angabe < 0,01 % / Elements without indication < 0,01 %

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) Ksi	yield (Rp0.2) Ksi	elongation 2" %	elongation A 5 %	Hardness HB
min.	39,0	16,0	14,0		
max.	51,0				
1	41,100	20,445	30,0		77,8
2	40,165	21,170	30,0		78,7

AI
Reviewed
NOV 20 2004

Reviewed

REVIEWED
NOV 20 2004

TUV SÜD Deutschland Rat und Betrieb GmbH

Notified Body No. 116 acc. to Pressure

Equipment Directive 97/23/EC

APR 18 2005

Testing Laboratory

Ergebnis der
Prüfungen:

Es wird bestätigt, dass die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

Test results:

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

Results:

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

27.05.2004

/ Sincere

Certified acc. to DIN EN ISO 9001:2000, valid until 2005-03-09
Certificate No.: 00253 QM

Der Werkstoffverständ

P.07/11 6924287659

T.W. METALS

JUL-16-2004 10:55

83087187

SENT BY: ANVIL ALLOYS INT;

+44 01923 800722 ; 10-JUN-04 9:06;

PAGE 5/5

M83087187

7-6-04



ALHWA AG

Leizener Weg 36 - 59425 Unna

Abnahmeprüfbescheinigung 3.1 B - EN 10204

Inspection Certificate 3.1 B - EN 10204 / Certificat de Reception 3.1 B - EN 10204

Kunde:
Client

Anvil Alloys International Ltd.

Unit 17, Fishers Ind. Est
Wigginhall Rd, Watford, Herts WD17 8GK Britain

Zeugnisnummer:

Cert No. / No. du certificat:

Bestellnummer:

Order No. / No. de commande:

Ausgabe:

Our Reference/Notre Référence:

12696

7100/1

Produkt:

Product / Produit:

Spezifikation:

Specification:

Werkstoff:

Alloy/Alliage:

Abmessung:

Size / Dimension:

Kennzeichnung:

Marking/Marquage:

Lieferung:

Delivered Material / Matériau livré:

ASME SB 241

5083

219,080 mm x 202,728 mm x 8,180 mm x 6000,00 mm

8" NB Sched. 40

Cert No. 1332-2 - 8" NB SCH 40 - 5083 - 0 - ASME SB 241 - AWI

Zustand:

Température:

PCS
10lbs
1836

1. Chemische Analyse

Chemical Analysis / analyse chimique

	Si	P	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
Charge/ min.				0,40	4,0	0,05							
Cast No. max.	0,40	0,40	0,10	1,0	4,9	0,25	0,25	0,15					
1332-2/03	0,243	0,267	0,029	0,558	4,735	0,077	0,070	0,027	0,003	0,001	0,0001	0,0015	0,0020
Hydrogen content	0,12 ccml/100 g Al												

Elements ohne Angabe < 0,01 % / Elements without indication < 0,01 %

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) Ksi	yield (R _{0,2}) Ksi	elongation 2" %	elongation A S %	Hardness HB
min.	39,0	16,0	14,0	12,0	
max.	52,0				
1	45,820	28,275	16,0	20,0	75A
2	45,675	27,405	18,0	23,3	75B

AI

Reviewed

Reviewed Nov 30 2004

TUV SÜddeutsche Bau und Betrieb GmbH

Notified Body No. 1000 to Pressure

Equipment Directive 97/23/EC

Testing Laboratory

APR 18 2005

Ergebnis der
Prüfung:

Test results:

Results:

Es wird bestätigt, dass die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht.

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order.

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception.

04.12.03

/ Sinda

Certified to EN ISO 9001:2000, valid until 2006-03-03
Certificate No.: 001539 QM

Der Werkstoffversand

REVIEWED

NOV 27 2004

83087187

M8308741 10-20-04

ALUMINA AG
Uelzener Weg 36 - 59425 Unna**Abnahmeprüfbescheinigung 3.1 B - EN 10204****Inspection Certificate 3.1 B - EN 10204 / Certificat de Reception 3.1 B - EN 10204****Kunde:**
Client:

Anvil Alloys International Ltd.

Unit 17, Fishers Ind. Est
Wiggenhall Rd Watford, Herts WD1 Great Britain**Produkt:****Product / Produit:****Spezifikation:****Specification:****Werkstoff:****Matériau:****Abmessung****Size / Dimension****Kennzeichnung****Marking/Markage:****Lieferung:****Delivered Material / Matériau livré:**

Tubes seamless extruded

ASME SB 241

5083

114,300 mm x 102,260 mm x 6,020 mm x 6000,00 mm
4" Sched. 40

ALUnna - Cast No. 2447-2 - 4" N8 SCH 40 - 5083 - 0 - ASME SB 241

Zeugnisnummer:**Cert No. / No. du certificat:****Bestellnummer:****Order No. / No. de commande:****Auftrag:****Our Reference/Notre Référence:**

13038

9925/1

Zustand:
Température:

0

AI
Reviewed

DEC 12 2004

1. Chemische Analyse**Chemical Analysis / analyse chimique**

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	B	Sn	Ni
Charge/ min.				0,40	4,0	0,05							
Cast No. max.	0,40	0,40	0,10	1,0	4,9	0,25	0,25	0,15					
2447-2/04	0,192	0,323	0,030	0,568	4,705	0,075	0,048	0,023	0,003	0,0259	0,0088	0,0017	0,0030

Hydrogen content: 0,12 ccm/100 g Al

Elemente ohne Angabe < 0,01 % / Elements without indication < 0,01 %

2. Mechanische Eigenschaften**Mechanical Properties / Valeurs Mécaniques**

Anforderungen Requirements	tensile (Rm) Ksi	yield (Rp0,2) Ksi	elongation Z ² %	elongation A S %	Hardness HB
min.	39,0	16,0	14,0		
max.	51,0				
1	40,890	21,750	26,0		73,9
2	45,530	24,070	22,0		72,2

Reviewed

TUV SÜDDEUTSCHLAND Bau und Betrieb GmbH

Notified body for Pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

APR 18 2005

NOV 30 2004

PEO OK

**Ergebnis der
Prüfungen:**

Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestätigung entspricht.

Test results:

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

Resultat:

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

13.08.2004

/ Since

Certified acc. to DIN EN ISO 9001:2000, valid until 2005-03-01
Certificate No.: 001939 QM

Der Werkstoffverständige

P.10/18

OCT-01-2004 12:34

83067741
4/40
11668088

07/16/04

13:41

88306900147

"TW Metals."

0003/003

1783087482 1-16-04

Uelzener Weg 36 - 59425 Unna

Abnahmeprüfbescheinigung 3.1 B - EN 10204

Inspection Certificate 3.1 B - EN 10204 / Certificat de Reception 3.1 B - EN 10204

Kunde:
Client:

Anvil Alloys International Ltd.

Unit 17, Fishers Ind. Est
Wiggenhall Rd Watford, Herts WD1 Great Britain

Produkt:

Product / Produit:

Spezifikation:

Specification:

Werkstoff:

Alloy/Alliage:

Abmessung:

Size / Dimension:

Kennzeichnung:

Marking/Marquage:

Lieferung:

Delivered Material / Matériau livré:

Tubes seamless extruded

ASME SB 241

5083

60,300 mm x 52,510 mm x 3,910 mm x 6000,00 mm

2" NB Sched. 40

Cast No. 1764-3-2" NB-Sch40/5083-0-Asme-SB241-AWU

Zeugnisnummer:

Cert No. / No. du certificat:

Bestellnummer:

Order No. / No. de commande

Auftrag:

Our Reference/Notre Référence

12832

7939/2

Zustand:

Temper/État

0

AW 2492366

T-138-C

K2244

1. Chemische Analyse

Chemical Analysis / analyse chimique

Charge/ Cast No.	min. max.	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
1764-3/04		0,40	0,40	0,10	0,40	4,0	0,05	0,25	0,15					
		0,202	0,349	0,033	0,581	4,738	0,106	0,047	0,022	0,003	0,0022	0,0016	0,0015	0,0053
Hydrogen content:		0,12 ccm/100 g Al												

Elemente ohne Angabe < 0,01 % / Elements without indication < 0,01 %

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) Ksi	yield (Rp0,2) Ksi	elongation 2" %	elongation A S %	Hardness HB
min.	39,0	16,0	14,0		
max.	51,0				
1	43,645	22,040	20,0		88,1
2	45,095	22,910	20,5		86,2

Reviewed

TÜV SÜddeutschland Bau und Betrieb GmbH

Notified body no. 1000 to Pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

APR 18 2005

Ergebnis der
Prüfungen:

Test results:

Results:

Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

29.03.04

I Sünde

Certified acc. to DIN EN ISO 9001:2000, valid until 2006-03-09
Certificate No.: 001959 QM

Der Untersachverständige

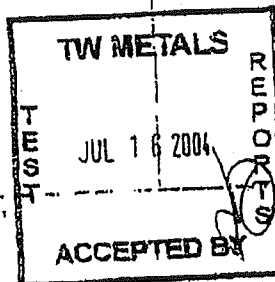
T.W. METALS

JUL-15-2004 14:07:32

VIEWED

DEC 21 2004

PED OK



Abnahmeprüfbescheinigung 3.1 B - EN 10204

Inspection Certificate 3.1 B - EN 10204 / Certificat de Reception 3.1 B - EN 10204

Kunde:
Client:

Anvil Alloys International Ltd.

Unit 17, Fishers Ind. Est
Wiggenhall ReWatford, Herts WD1. Great Britain

Produkt:

Product / Produit:

Tubes seamless extruded

Spezifikation:

Specification:

ASME SB 241

Werkstoff:

Alloy/Alliage:

5083

Abmessung

Size / Dimension

169,280 mm x 146,340 mm x 10,970 mm x 6000,00 mm
6" NB Sched. 80

Kennzeichnung

Marking/Marque:

Cast No. 2158-2 - 6" NB SCH 80 - 5083-0 - ASME SB 241 - AWU

Lieferung:

Delivered Material / Matériel délivré:

pcs. lbs
6 1142

Zeugnisnummer:

Cert No. / No. du certificat:

Bestellnummer:

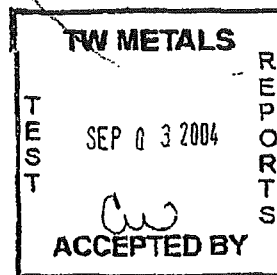
Order No. / No. de commande

Auftrag:

Our Reference/Notre Référence:

12988

8870/1



1. Chemische Analyse

Chemical Analysis / analyse chimique

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
Charge/ min.				0,40	4,0	0,05							
Cast No. max.	0,40	0,40	0,10	1,0	4,9	0,25	0,25	0,15					
2158-2/04	0,199	0,297	0,027	0,515	4,620	0,076	0,045	0,023	0,003	0,0019	0,0002	0,0013	0,0020

Hydrogen content: 0,13 ccm/100 g Al

Elements ohne Angabe < 0,01 % / Elements without indication < 0,01 %

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) Ksi	yield (Rp0,2) Ksi	elongation 2" %	elongation A S %	Hardness HB
min.	39,0	16,0	14,0		
max.	51,0				
1	46,835	27,260	18,5		72,3
2	45,820	26,970	17,5		71,8

Reviewed

TÜV SÜDDEUTSCHLAND Bau und Betrieb GmbH

Notified Body for acc. to Pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

Ergebnis der
Prüfungen:

Es wird bestätigt, dass die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

Test results:

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

Résultats:

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

03.06.2004

/ Sirde

Certified acc. to DIN EN ISO 9001:2000, valid until 2006-03-09
Certificate No.: 001959 QM

Der Werksachverständige

12/28/2004 10:52 6306900147
DEC-28-2004 08:39

TWMETALS

PAGE 03/03

F.06/06

ALUMINA AG
Uetziener Weg 36 - 59425 Unna

Abnahmeprüfbescheinigung 3.1 B - EN 10204

Inspection Certificate 3.1 B - EN 10204 / Certificat de Reception 3.1 B - EN 10204

Kunde:
Client:

Anvil Alloys International Ltd.

Unit 17, Fishers Ind. Est
Wiggenhall RoWelford, Herts WD1. Great Britain

Zertifikatsnummer:

Cert No. / No. du certificat:

Bestellnummer:

Order No. / No. de commande

Auftrag:

Our Reference/Notre Référence:

13267

11086/1

PO 2490244
T-151-C
12-30-04

Produkt:

Product / Produit:

Spezifikation:

Specification:

Werkstoff:

Alloy/Alliage:

Abmessung:

Size / Dimension

Tubes seamless extruded

ASME SB 241

5083

323,900 mm x 304,880 mm x 9,520 mm x 5000,00 - 6000,00 mm

12" NB STD. Wall

Zustand: 0

Temperatur:

Temperature

Kennzeichnung:

Marking/Markage:

Lieferung:

Delivered Material / Matériau livré:

pcs.

10

lbs

1384

1. Chemische Analyse

Chemical Analysis / analyse chimique

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Br	Sn	Ni
Charge/ min.				0,40	4,0	0,05							
Cast No. max.	0,40	0,40	0,10	1,0	4,9	0,25	0,25	0,15					
1799	0,15	0,27	0,02	0,74	4,7	0,07	0,04	0,02					

Hydrogen content:

0,13

com/180 g Al

1807

0,13

0,30

0,02

0,78

4,5

0,07

0,02

0,02

Hydrogen content:

0,12

com/180 g Al

Elements ohne Angabe < 0,01 % / Elements without indication < 0,01 %

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) Ksi	yield (Rp0,2) Ksi	elongation 2" %	elongation A %	Hardness HB
min.	39,0	16,0	14,0		
max.	51,0				
1	43,645	24,650	21,7		
2	43,500	24,940	22,4		
3	42,630	23,925	23,6		

Reviewed

TÜV SÜddeutschland Bau und Betrieb GmbH

Notified body for approval to Pressure

Equipment Directive 97/23/EC

Testing Laboratory

This certificate is valid only if the material is certified to the latest revision of the above stated ASME Specification active at the date of manufacture.

Cast No. 1799 - 5 pcs. / 1807 - 5 pcs.

Test results:

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

Resultat:

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

11.11.2004

/ Sinda



Certified acc. to DIN EN ISO 9001:2000, valid until 12/31/05
Certificate No.: 001979 QM

DEC-29-2004

PS 12-29-04

Prod of

Der Werkstoffverständige

TOTAL P. 06

M83085261 12/20/02 CW



Uelzener Weg 36 - 59425 Unna

Abnahmeprüfbescheinigung 3.1 B - EN 10204

Inspection Certificate 3.1 B - EN 10204 / Certificat de Reception 3.1 B - EN 10204

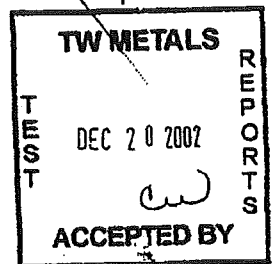
Kunde: Anvil Alloys International Ltd.
Client: Anvil House, Vale Industrial Park
Tolpits Lane Watford WD1 8QP
Great Britain

Zeugnisnummer:
Cert No. / No. du certificat: 12034
Bestellnummer:
Order No. / No. de commande 139707/1
Auftrag:
Our Reference/Notre Reference:

Produkt: Tubes seamless extruded
Product / Produit:
Spezifikation: ASME SB 241
Specification:

Werkstoff: EN AW-5083
Alloy/Alliage:
Abmessung: 48,260 mm x 40,900 mm x 3,680 mm x 6000,00 mm
Size / Dimension: 1 1/2" NB Sched. 40
Kennzeichnung: Cast No. 7726 - 1 1/2" NB Sched 40 - 5083 - 0 - ASME SB 241 - AWU
Marking/Marquage:
Lieferung: pcs. lbs
Delivered Material / Matériel délivré: 34 602

Zustand: 0
Temper/État



1. Chemische Analyse Chemical Analysis / analyse chimique

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
Charge/ min.				0,40	4,0	0,05							
Cast No. max.	0,40	0,40	0,10	1,0	4,9	0,25	0,25	0,15					
7726/02	0,261	0,336	0,051	0,600	4,765	0,072	0,067	0,027	0,009	0,0074	0,0001	0,0018	0,0033

Hydrogen content: 0,12 ccn/100 g Al

Elemente ohne Angabe < 0,01 % / Elements without indication < 0,01 %

2. Mechanische Eigenschaften Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) Ksi	yield (Rp0,2) Ksi	elongation 2" %	elongation A 5 %	Hardness HB
min.	39,0	16,0	14,0		
max.	51,0				
	40,310	20,155	22,0	25,7	72,2

Reviewed

TÜV Süddeutschland Rau und Betrieb GmbH

Notified Body for Pressure

Equipment Directive 97/23/EC

Testing Laboratory-

APR 18 2005

JAN 06 2005

Ergebnis der Prüfungen:

Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

Test results:
Results:

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order
Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

Certified acc. to DIN EN ISO 9002 valid until 2007-02-03

83085261
1.5 2/40

M 83088087

12/28/04



Uelzener Weg 36 - 59425 Unna

Abnahmeprüfbescheinigung 3.1 B - EN 10204

Inspection Certificate 3.1 B - EN 10204 / Certificat de Reception 3.1 B - EN 10204

Kunde:
Client:

Anvil Alloys International Ltd.

Unit 17, Fishers Ind. Est
Wiggenhall RoWattford, Herts WD1 Great Britain

Zeugnisnummer:

Cert No. / No. du certificat

Bestellnummer:

Order No. / No. de commande

Auftrag:

Our Reference/Notre Reference:

13159

10561/3

Pw 2495637
T-175-C

112505

Produkt:

Tubes

Product / Produit:

Specification:

ASME SB 241

Specification:

Werkstoff:

5083

Alloy/Alliage:

Abmessung

273,050 mm x 254,510 mm x 9,270 mm x 5000,00 - 6000,00 mm

Size / Dimension

PS-01-10-40

Kennzeichnung

Cast No. 01/401805 - 10° NB SCH 40 - 5083 - 0 - ASME SB 241 - ANV ✓

Marking/Markage:

Lieferung:

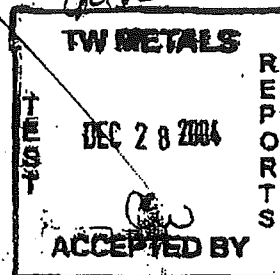
Delivered Material / Matériel délivré:

pcs.

lbs

10

2656



1. Chemische Analyse

Chemical Analysis / analyse chimique

	Si	Fe	Cu	Mn	Ni	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
Charge/ min.				0,40	4,0	0,05							
Cast No. max.	0,40	0,40	0,10	1,0	4,9	0,25	0,25	0,15					
01/401805	0,11	0,29	0,03	0,76	4,7	0,07	0,04	0,01					

Hydrogen content: 0,19 ppm/100 g Al

Elemente ohne Angabe < 0,01 % / Elements without indication < 0,01 %

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) Ksi	yield (Rp0.2) Ksi	elongation 2" %	elongation A %	Hardness HB
min.	39,0	16,0	14,0		
max.	51,0				
1	44,080	25,665	23,6		
2	42,050	21,750	28,9		

Reviewed

TÜV SÜDDEUTSCHLAND Bau und Betrieb GmbH

Notified body no. 1000 in Pressure

Equipment Directive 97/23/EC

Testing Laboratory:

This material has been manufactured and certified to the latest revision of the above stated ASME Specification active at the date of manufacture.

JAN 25 2005

P50
OK

Test results:

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

Results:

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à réception de la commande

27.10.2004

/ Sine



Certified acc. to DIN EN ISO 9001:2000, valid until 2006-03-09

P.07/15

DEC-28-2004 10:39

83088087
10 Jan 40

10/15/2004 13:40

6306900147

TWMETALS

PAGE 03/03

14/10 2004 14:05 FAX +30 22620 53683

ELVA S.A./V. GRIMANIS

001/001

m49107483 10-150



ATHENS - LAMIA NATIONAL ROAD (57th Km), 32011 INORITA VIOTIA, GREECE
TEL: +30 22620-32 260, 31503, 32 241

FAX: +30 22620-32 236, 32 237, TLX: +601-299321, 299324, 299325, 299326

HELLENIC ALUMINIUM INDUSTRY S.A.

- MILL TEST CERTIFICATE -

C-16 No: 55717

DATE: 19/06/2004

Customer : COMMONWEALTH - USA
Order No : 01883
Your Ref. : 6310-06

Notes : INVOICE NR:95005100
INTERNAL PACKING LIST NR:80010662 PD M4907483
ACCORDING TO AA, ASTM B209-04, AMS-QQA-250/6 AND AMS B209 SPECIFICATIONS.

TEST REPORT ACC TO EN 10204/3.1B

PRODUCTS LIST

A. CHEMICAL ANALYSIS (%)

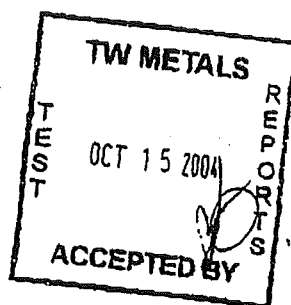
Order Line	Product Name	Alloy	Temper	Thickn / Strip Width	Length	Coil No	Si	Fe	Mn	Mg	Cu	Ti	Zn	Cr
0188301	ALUMINIUM SHEETS	5083	-O-	6.3500	1524.00 3657.60	040555201	.12	.33	.60	4.77	.029	.015	.016	.092
			Inches : .25000		60.000 144.000									

B. MECHANICAL PROPERTIES

Heat No	Coil No	Test No	Posit	RPM N/mm2	RP2 N/mm2	ELONG %
04201620	040555201	4563	AL	310.4	171.8	20.6
			Ksi :	45.012	24.913	

Quality Control Department

PIP D. MOUTSOPOULOS



REVIEWED

15
PEN BK

Reviewed

TÜV SÜddeutschland Flug und Betrieb GmbH

Notified body for the application of Pressure

Equipment Directive 97/23/EC

-Testing Laboratory- APR 18 2005

TR

44107483

TW METALS - SHIPPING

06/11/04 FRI 09:24 FAX 630

SENT BY: ANVIL ALLOYS INT;

444 01923 800722 ; 10-JUN-04 9:05;

PAGE 2

BRITISH ALUMINIUM TUBES

Division of British Aluminium Specialty Extrusions and Tubes Ltd.
 Studley Road, Redditch, Worcester B98 7HN, England
 Telephone (01527) 484500, Facsimile (01527) 404501

Customer

ANVIL ALLOYS INTERNATIONAL LTD B/B
 ANVIL HOUSE
 VALLS INDUSTRIAL PARK
 TOLPITS LANE
 WATFORD HEATHS
 WD1 8QP

Your Order No : 10319
 Our Order No : 77615
 Picking Note No : 83414
 Date : 06 Mar 2001
 Packages : 1 BUNDLE

ASME CERTIFICATE OF CONFORMITY

THIS MATERIAL HAS BEEN MANUFACTURED, SAMPLING,
 TESTED AND INSPECTED AND MEETS THE REQUIREMENTS
 OF THE NATIONAL SPECIFICATION

T-007-C

SEAMLESS DRAWN TUBE - 73.00MM OD X 1.160MM WT

Tensile Test

No of Pieces	Net Weight	Lot or Test No.	0.2% Proof Stress KSI	Tensile Strength KSI	% Elongation 2in
1	265	190425	19.73	45.40	20
2	152	190426	20.16	45.25	23
2	75	190427	20.00	45.54	23

TW METALS
 JUN 11 2004
 ACCEPTED BY

Chemical Analysis %

Cu	Fe	Pb	Al	Mg	Cr	Mn	Zn	Ti	H ccf 100gm
0.16	0.39	0.05	0.65	4.56	0.15	0.03	0.03	0.03	0.14
0.16	0.39	0.05	0.66	4.56	0.15	0.03	0.03	0.03	0.14
0.16	0.40	0.04	0.69	4.46	0.14	0.02	0.02	0.00	0.14

ASME CONFORMITY STATEMENT REQD. TEST CERTS TO EN 10004 3.1B
 WT 4 TOL GUIDANCE ONLY (CLASS CONFORMS TO EN 10004 3.1B)

TUV SÜddeutschland Bau und Betrieb GmbH

Notified body No. 13 acc to Pressure

Equipment Directive 97/23/EC

Testing Laboratory

Registered in England No. 2081385
 Registered Office: The Victoria, Harlow City, Essex, England
 VAT Registration No. GB 698 2142 25

APR 18 2005

REVIEWED

AT REVIEWED

AEA 6/14/04

JUN 14 2004

Test Report

Customer Copy No. 77615/1

Over Test Passed

6/15/04

11/11/04

01/06/04

05/06/04

CERTIFIED SECTION REPORT

[illegible]

Mark J. Kratke

[illegible]

Walter R. Young

Karlton P. Young
Quality Assurance Manager

Ship to: TW MOTALS
14600 JAMES RD.
ROGERS, MN 55374

Item Description

.375 IN TK X-60.000 IN W X 144.000 IN LN NY A71 3002
 O STORAGE TANK & CRYOGENIC PLATE MILL FINISH,
 SAMSUNG ITEM 11452. PER ASTM-B-209 REV A99 & EXCEPT MA-
 A-350/6 & EXCEPT MARKING ASTM-B209 REV 02A &
 EXCEPT MARKING AMS4056 REV F DIMENSIONAL
 TOLERANCES F ANSII15.2 REV 2001
 ((MARKED)) PAPER INTERLEAVED
 MAX GROSS SKID WGT: 8000 LB QUAN TOL +/-40
 * CQR 0146717 REV 01 CUST REQ 04-05-
 07 *** W/E 04-05-08 ***

5-407-C

TEST
ACCEPTED BY
MAY 06 2004
TVM METALS
REPORTS

[illegible]

Notes for CQR: 0146717.1

PRODUCT PRODUCED AND MARKED TO THE REQUIREMENTS OF QQ-A-250/6G. PRODUCT
PRODUCED AND MARKED TO THE REQUIREMENTS OF QQ-A-250/6G ALSO MEETS THE REQUIREMENTS OF QQ-A-250/6.
PRODUCED AND MARKED TO THE REQUIREMENTS OF QQ-A-250/6G ALSO MEETS THE REQUIREMENTS OF QQ-A-250/6.

CRN: 0146717.1 -Specification Limits

Temp	Dir	UTS		TYS		EL4D PCT
		Max	RSI	Max	RSI	
0	longitudinal	51.0		29.0		
		40.0		18.0		16

Chemical Composition

400057 Mechanical, physical, Metallurgy, Quantometer Results

Type	DLR	Longitudinal	No. Test	UTS		TVS		BLAD
				KSI	Max	KSI	10.3	
0			3	44.1	21	21	21	Reviewed
				43.6	Nin	20.7	20.7	20.7/20.7

BEVERLY

100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918

Percent Heavy is
Face to Pressure

-Testing Laboratory- Equipment

CERTIFICATE OF SPECIFICATION REPORT

We hereby certify that the material described by the certificate has been inspected with and has been found to meet the applicable requirements described therein, including any specifications bearing in mind all the inspection and test samples representative of the material and the inspection results and the inspection results and the inspection results and the inspection results.

Mark J. Vahlbric
Director of Manufacturing Development

Kenton P. Young
Kenton P. Young
Quality Assurance Manager

Lot: 486463 - Mechanical, Physical, Metallurgy, Quantometer Results (cont.)
Cast Number 112700022
Actuals: Si .09, Fe .20, Cu .05, Mn 0.65, Mg 4.4, CR .09, ZN .02, TI .02

Alcoa C.

267953
Ship Date 2004-05-05
P.O. No./Govt Contract No. H 49103119
124053
B.L. No. 51199

PITTSBURGH, PA Ship From: RIVERDA IA.

Page

Alcoa No. Item
DS-73931-1

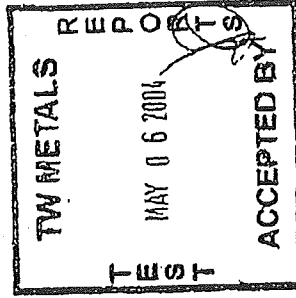
Invoice No. 38251

CUSTOMER

TW METALS-ROCKERS

9-407-C

T.W. METALS



Reviewed
TUV SÜDDEUTSCHLAND Bau und Betrieb GmbH
Notified Body No. acc. to Pressure
Equipment Directive 97/23/EC
-Testing Laboratory-

APR 18 2005

[Signature]

REVIEWED

APR 25 2005

[Signature]

6124201003

08/04/04 14:51 26306900147

"TW Metals."

0006/000

04/08 '04 18:16 FAX 00302262031494

ELVAL S.A.

SALES DEP.

COMMONWEALTH

001/001

jobnr

m4909403 8-4-04

04-AUG-04 16:52

FROM-Elval SA Plant Sec

+902262031347

T-25B P.001/001 F-039

S-408-C

ATHENS - LAMIA NATIONAL ROAD (57th Km), 32011 INORTA VOTIA, GREECE
TEL +30 2620-32 269, 31503, 32 241

HELLENIC ALUMINIUM INDUSTRY S.A.

FAX +30 2620-32 236, 32 137, TLX +601-299327, 299324, 299325, 299326

Page : 1

- MILL TEST CERTIFICATE -

Crtf No : 53084

DATE : 05/04/2004

Customer : COMMONWEALTH - USA
Order No : 0 0415
Your Ref. : 5049-06

INVOICE NR:

Notes : INTERNAL PACKING LIST NR:00005715

ACCORDING TO AA, ASTM B209/02, ASME B209/02 AND AMS200-250/6 SPECIFICATIONS.

TEST REPORT ACC TO EN 10204/3.1B

P02481668
5/30/04

PRODUCTS LIST

A. CHEMICAL ANALYSIS (%)

Orderline	Product Name	Alloy	Temper	Thickness	Width	Length	Coil No	Si	Fe	Mn	Mg	Cu	Ti	Zn	Dr
ALUMINIUM SHEETS															
0041501		5083	-0-	9.5250	1524.00	3657.60	040180401	.12	.35	.49	4.24	.025	.014	.016	.208
			Inches :	.37500	60.000	144.000									
0041502		5083	-0-	12.7000	1524.00	3657.60	040180501	.12	.35	.49	4.24	.025	.014	.016	.208
			Inches :	.50000	60.000	144.000									

B. MECHANICAL PROPERTIES

Heat No	Coil No	Test No	Posit	RPM N/mm2	R02 N/mm2	ELONG %
04201630	040180401	1620	RL	311.0	188.6	16.5
			Kel :	45.099	27.349	
04201630	040180501	2639	RL	306.4	159.6	17.7
			Ksi :	44.432	23.144	

Quality Control Department

Reviewed

TÜV Süddeutschland

Notified Body acc. to Pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

Art. Sirca Di Bond

B.R.

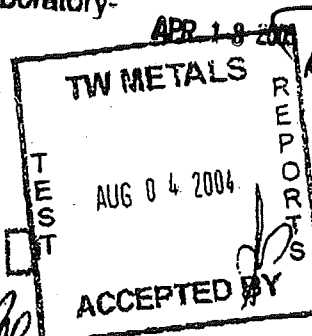
K. MAZIMAKIS

At Reviewed

5/27/04

REVIEWED

AUG 26 2004

P.C.O.
O.K.

4909403

CERTIFIED INSPECTION REPORT

ALCOA C.C.

PITTSBURGH, PA DAVENPORT, ARKS
Ship From: RIVERDALE, IA.

Page 1

We hereby certify that the material covered by this certificate has been inspected with, and has been found to meet, the applicable requirements described therein, including any specifications forming a part of the description and that samples representative of the material met the composition limits and had the mechanical properties shown on the face of this sheet.

Per

Mark J. Vrabec

Mark J. Vrabec
Director of Manufacturing Davenport Works

Kenton P. Young

Kenton P. Young
Quality Assurance Manager

124061

B.L. No.

51172

P.O. No./Govt Contract No.

M 49101149

Invoice No.

38205

Alcoa No. Item

DS-72428-1

Customer

TW METALS-CINCINN

Ship To: TW METALS
7640 REINHOLD DRIVE
CINCINNATI, OH 45237

Item Description

.750 IN TK X 96.000 IN W X 288.000 IN LN (N) A/T 5083-
O STORAGE TANK & CRYOGENIC PLATE MILL FINISH, SAWED. PER ASME
SB-209 REV A99 & EXCEPT MARKING AMS-QQ-A-
250/6 & EXCEPT MARKING ASTM B209 REV 02A &
EXCEPT MARKING AMS4056 REV F DIMENSIONAL
TOLERANCES F ANSIR35.2 REV 2003
((MARKED)) INTERLEAVED SKID WGT: 6000 LB QUAN TOL +/-
40 & CQR 0103319 REV 06 CUST REQ 04-04-
05 *** W/E 04-04-17 ***

9-409-6
PO 2181668
726 8/30/04

Num	Package Ticket	Lot	Weight	Quantity	UOM	Pc Id/Serl
1	770982	424404	5899	3	PC	
2	770986	424404	1962	1	PC	
			7861	4		

Notes for CQR: 0103319.6
PRODUCT PRODUCED AND MARKED TO THE REQUIREMENTS OF AMS-QQ-A-250/6 ALSO MEETS THE REQUIREMENTS OF QQ-A-250/6G. PRODUCT
PRODUCED AND MARKED TO THE REQUIREMENTS OF QQ-A-250/6G ALSO MEETS THE REQUIREMENTS OF AMS-QQ-A-250/6.

CQR: 0103319.6 -Specification Limits

Temp Dir	Longitudinal	Max	Min	UTS	KSI	EL4D	PCT
				51.0	29.0		
				40.0	18.0		16

Chemical Composition

SI	FE	CU	MN	MG	CR	ZN	TI	Each	Total
.40	.40	.10	1.0	4.9	.25	.25	.15	.05	.15
				.40	4.0	.05			

Alloy 5083

Lot: 424404 -Mechanical, Physical, Metallography, Quantometer Results

Temp Dir	Longitudinal	Max	Min	UTS	KSI	EL4D	PCT
				45.9	28.2		
				45.3	27.2		19.6

reviewed

TUV SÜDDEUTSCHLAND AG und Betrieb GmbH

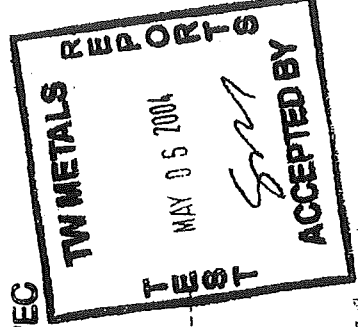
NOTIFIED BODY No. 13300 for Pressure

Equipment Directive 97/23/EC

Testing Laboratory

APR 18 2005

REMAIN



REVIEWED

APR 25 2005

150

CERTIFIED INSPECTION REPORT

Alcoa Inc.

PITTSBURGH, PA DAVENPORT CRKS
Ship From: RIVERDALE, IA.

Page 2

We hereby certify that the material covered by this certificate has been inspected with, and has been found to meet, the applicable requirements described therein, including any specifications forming a part of the description and that samples representative of the material met the composition limits and had the mechanical properties shown on the face of this sheet.

Mark J. Vrablic
Mark J. Vrablic
Director of Manufacturing Davenport Works

Kenton P. Young
Kenton P. Young
Quality Assurance Manager

Lot: 424404 - Mechanical, Physical, Metallography, Quantometer Results (cont.)
Cast Number H274101D
Chemical SI FE CU MN MG CR ZN TI
Actuals .10 .22 .04 0.65 4.5 .09 .01 .02

267889
Ship Date 2004-05-04
B.L. No. 124061
51172
P.O. No./Govt Contract No. M 49101149

Invoice No. 38205
Alcoa No. Item DS-72428-1

Customer TW METALS-CINCINN

9-409-C

Reviewed

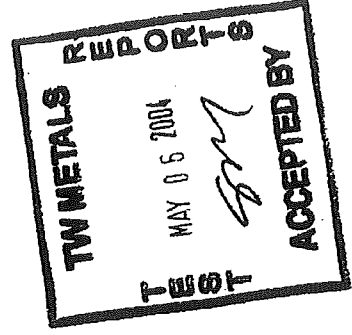
TUV SÜDdeutsche Land Rad und Betrieb GmbH

Notified Body No. 0000 to Pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

APR 11 2004



REVIEWED

AUG 26 2004 JLE

APR 26/04

JUL. 1. 2004 7:16AM

COMMONWEALTH METAL

PO 2490245
5483C

NO. 1-437 7-437/3

commonwealth PO # M49103125



ATHENS - LAMIA NATIONAL ROAD (57th Km), 32011 INOUESSA, GREECE
TEL +30 2620-32 269, 31503, 32 241

HELLENIC ALUMINIUM INDUSTRY S.A.

FAX +30 2620-32 236, 32 237, Tlx +301-299327, 299324, 299325, 299326

Page 1

- WILL TEST CERTIFICATE -

Ctrl No : 54989
DATE : 26/05/2004

Customer : COMMONWEALTH - USA
Order No : 0 0763
Your Ref : 5322-06

Notes : INVOICE NO. 4309
INTERNAL PACKING LIST NO. 60003002 PO M49103125
ACCORDING TO AL. ASTM B209, AMS 4941-2306 AND AMS 4942 SPECIFICATIONS

TEST REPORT ACC TO EN 10204/2.10

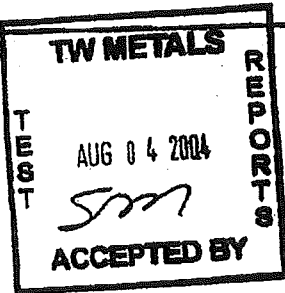
PRODUCTS LIST

A. CHEMICAL ANALYSIS (%)

OrdLine	Product Name	Alloy	Temper	Thickn /Step	Width	Length	Coil No	Si	Fe	Mn	Mg	Cu	Ti	Zn	Cr
ALUMINIUM SHEETS															
0076301		5083	-0	9.3200	1524.00	3657.60	040257301	.11	.31	.43	4.30	.032	.006	.019	.180
			Inches :	.37500	60.000	144.000									
0076302		5083	-0	12.7000	1524.00	3657.60	040453101	.12	.33	.55	4.54	.032	.013	.017	.118
			Inches :	.50000	60.000	144.000									

B. MECHANICAL PROPERTIES

Heat No	Coil No	Test No	Posit	RPB N/mm2	R02 N/mm2	ELONG %
04203000	040257301	2989	RL	313.0	190.2	15.8
			Kel	45.389	27.581	
04201510	040453101	2943	RL	313.0	173.0	18.0
			Kel	45.389	25.087	



JAN 19 2005

Quality Control Department

REVIEWED

JAN 19 2005

PER OK

Item # 11450 & 11452

Attn: Sue McD & Tom Crippen

Reviewed

TÜV SÜDDEUTSCHLAND AG und Betrieb GmbH

Notified Body for Pressure

Equipment Directive 97/23/EC

-Testing Laboratory- APR 18 2005

49103125

CERTIFIED INSPECTION REPORT

Alcoa Inc.

PITTSBURGH, PA DAVENPC ORKS
Ship From: RIVERDALE, IA.

Page 1

We hereby certify that the material covered by this certificate has been inspected with, and has been found to meet, the applicable requirements described therein, including any specifications forming a part of the description and that samples representative of the material met the composition limits and had the mechanical properties shown on the face of this sheet.

Mark J. Vrabec
Director of Manufacturing Davenport Works

Mark J. Vrabec
Quality Assurance Manager

321315
Ship Date
2005-01-07
P.O. No./Govt Contract No.
M 49118997

6034
B.L. No.
79299
Invoice No.
DS-81952-11
Alcoa No. Item

CUSTOMER
TW METALS CINCINNATI

48587

5-504-C

Ship To: TW METALS
7640 REINHOLD DRIVE
CINCINNATI, OH 45237

Item Description
1.000 IN TK X 96.000 IN W X 288.000 IN LN (A) A/T 5083-
O STORAGE TANK & CRYOGENIC PLATE MILL FINISH, SAWED PER ASME
SB-209 REV A99 & EXCEPT MARKING AMS-QQ-A-
250/6 & EXCEPT MARKING ASTM B209 REV 04 &
EXCEPT MARKING AMS4056 REV F DIMENSIONAL
TOLERANCES F ANS H35.2 REV 2003
((MARKED)) INTERLEAVED SKID WGT: 6000 LB QUAN TOL +/-
40 % CQR 0101480 REV 08 CUST REQ 05-01-
07 *** W/E 05-01-08 ***

Num	Package Ticket	Lot	Weight	Quantity	UOM	Pc Id/Serl
1	244367	701492	5356	2	PC	
2	244375	701492	5381	2	PC	
			10737	4		

Notes for CQR: 0101480.8
PRODUCT PRODUCED AND MARKED TO THE REQUIREMENTS OF AMS-QQ-A-250/6 ALSO MEETS THE REQUIREMENTS OF QQ-A-250/6G. PRODUCT PRODUCED AND MARKED TO THE REQUIREMENTS OF QQ-A-250/6G ALSO MEETS THE REQUIREMENTS OF AMS-QQ-A-250/6.

CQR: 0101480.8 -Specification Limits

Temp Dir	Longitudinal	Max	Min	UTS KSI	YTS KSI	EL4D PCT
0		51.0	40.0	29.0	18.0	16
Chemical Composition	Max	Min	SI	FE	CU	MN
Alloy 5083			.40	.40	.10	1.0
			.40	4.0	.05	.25
						.15
						.05
						REMAIN

Lot: 701492 -Mechanical, Physical, Metallography, Quantometer Results

Temp Dir	Longitudinal	Max	Min	UTS KSI	YTS KSI	EL4D PCT
0		46	45.4	46	45.4	20.2

TUV Sudddeutschland Flug und Betrieb GmbH

Notified Body No. 180010 Pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

APR 18 2005

TW METALS REPORT
TEST
JAN 11 2005
ACCEPTED BY
S.M.

FEB 01 2005

A.7 JM

2-1-05
P.d ok

CERTIFIED INSPECTION REPORT

Alcoa Inc.

PITTSBURGH, PA DAVENPORT AKS
Ship From: RIVERDALE, IA.

Page 2

We hereby certify that the material covered by this certificate has been inspected with, and has been found to meet, the applicable requirements described therein, including any specifications forming a part of the description and that samples representative of the material met the composition limits and had the mechanical properties shown on the face of this sheet.

Per: *Mark J. Vrablic* *K. P. Young*

Mark J. Vrablic
Director of Manufacturing Davenport Works
K. P. Young
Quality Assurance Manager

321315
Ship Date
2005-01-07
P.O. No./Contract No.
M 49118997

6034
B.L. No.
67081
Invoice No.
79299
Alcoa No. Item
DS-819521
Customer
TW METALS-CINCINN

Lot: 701492 - Mechanical, Physical, Metallography, Quantometer Results (cont.)
Cast Number Chemical SI FE CU MN MG CR ZN TI
H2944031 Actuals .11 .22 .04 0.64 4.5 .08 .02 .02

S-504-C

UY Studeutschland Ray und Betrieb GmbH
Notified Body No. 1001 to Pressure
Equipment Directive 97/23/EC
Testing Laboratory-
APR 18 2005

REVIEWED
FEB 01 2005

A. J. M.
2-1-05

TW METALS
REPORTS
JAN 11 2005
SM
ACCEPTED BY
TEST

6124237669 J.E. 05/17

9-374-C

M49099407

5-24-04 ~~AC~~

P02472328
Re
6/2/04

CONTRACT/ORDER : 4742-06
BILL OF DELIVERY : 62011
TRUCK/CONTAINER : UXXU 2359024

ALUMINUM PRODUCTS-SHIPMENT OF 10372.574 LBS ALUMINUM PLATES 5063 "O",MILL FINISH.
PRODUCED ACCORDING TO ASTM B209,AMS/OQA 250/6 & ASME SB 209 STANDARDS,TO
BALTIMORE,MD LETTER OF CREDIT NUMBER G-797497. SHIPMENT FROM CONSTANTA ROMANIA
TO BALTIMORE MD,BUYERS CONTRACT NUMBER 4742-06.SHIPPING TERMS: CFR BALTIMORE,MD

MATERIAL : ALUMINUM PLATE
ALLOY 5083
DIMENSIONS (mm) : MF105 1 000*THX50.00*WDX164*.00LT

TEMPER: 0

ACCORDING TO : ASTM B209;AMS-QQA-250/6;ASME-SB-209

MECHANICAL PROPERTIES			1 MPa = 1 N/mm2 = 0.145 ksi = 0.102 kgf/mm2							
1 lbs = 0.4536 kg			UTS		YTS		Elong. %	Hardness		
			ksi		ksi		50mm	HB		
			min.	max.	min.	max.	min.	min.		
Specified values:			40	51	18	29	15			
LOT	CASE	NET WEIGHT lbs	Measured values:							
MF105	6:7	10,372 574	40 S	28.7	19					
			40.6	21.6	22					
CHEMICAL COMPOSITION %										
LOT	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ni	Ti	Al
MF105	0.21	0.33	0.024	0.49	4.56	0.075	0.021	0.005	0.019	REM
Min.				0.4	4	0.05				REM
Max.	0.4	0.4	0.1	1	4.9	0.25	0.25	0.05	0.15	
Cond.			Others Each: 0.05				Others Total: 0.15			

REMARKS:

We hereby certify that the material detailed hereon has been produced and tested according to the requirements of the relevant specification and/or order. Keep in dry conditions, without large temperatures variations.

Date: QUALITY CONTROL DEPT.

3/3/2004

620 F-4.10.-0413

E.C. ALPROM S.A.

- SLATINA -
- T. E. L. B. M. I. N. G.

- SCAPINA -
G. T. F. O. H. A. R. I. E. D. G. m. b. H.

ГДМ Шодевитск

MOVED 6037-00

Pressure

Equipment Directive 97/23/EC

APR 18 2005

..Testing Laboratory=

REVIEWED

JUN 01 2004

Red
1015

LI 34

6104

49099407

Alcoa Inc.

Wm. J. Barker

Atk. J. Viable
Director of Manufacturing Development

Kenneth P. Young
Digital Assistant Manager

277639
Ship Date
2004-07-12
P.O. No./Govt Contract No.

СЛЕДУЮЩИМ

PHILIPSON, PA

1145

Invoice No.
49657

Alcoa No. Item
DS-74499-1

ജി

SHIP TO: TV METALS
14600 JAMES RD.
ROGERS, MN 55374

Item Description

0) X 144.000 IN LN (+1/2 -0) (N) A/T 5083-

STORAGE TANK & CRYOGENIC PLATE MILL FINISH, SAWED ITEM 11451. PER ASHE-

AMS-QQ-A-250/6 & EXCEPT MARKING ASTM B209 REV

ANSI Z39.1 MARKING AMS4055 REV F
DIMENSIONAL TOLERANCES F ANYTHING 2

2003 ((MARKED)) PAPER INTERLEAVED

STANDARD 1000 LB QUANT. +/-

07 111030 MW 04
W/S 04-06-19 34
CUST REQ 04-06-19

[illegible]

Notes for CQR: 0141836.4

PRODUCT PRODUCED AND MARKED TO THE REQUIREMENTS OF AMS-QQ-A-250/6 ALSO MEETS THE REQUIREMENTS OF QQ-A-250/6G. PRODUCT PRODUCED AND MARKED TO THE REQUIREMENTS OF QQ-A-250/6G ALSO MEETS THE REQUIREMENTS OF AMS-QQ-A-250/6.

CQR: 0141836.4 -Specification Limits

Temp	DLR	UTS	TYS	BLAD
	Longitudinal	KSI	KSI	PCT
0		Max	29.0	
		Min	18.0	16

Chemical Composition		Si	PE	CU	IN	MG	CR	2N	YI	Each	Total	Aluminum	Other
Max	Min												
		.40	.40	.10	1.0	4.9	.25	.25	.15	.05	.15		
				.40		4.0	.05						

NOT: 529552 -Mechanical, Physical, Metallography, Quantometer Results

Sample	Dir	No. Test	UTS ksi	TYS ksi	EC4D pcf
1	Longitudinal	6	Max 45.8 Min 44.8	24.3 23.5	25.7 22.1

100

10/2/04

Notified Body No. 0101

Equipment Director

Testing Laboratory- N

APR 18 2015

REP OK

REVIEWED

Oct 01... pl

REPORTS
TW METALS
AUG 05 2004
TEST
ACCEPTED BY

10/6/01
RV
886384c ok

9-4/22-C

08/05/04 11:32

56308900147

ALL INFORMATION CONTAINED
HEREIN IS UNCLASSIFIED

100/9007

JUL-13-2004 12:49

T.W. METALS

6124287669 P.02/04

CERTIFIED INSPECTION REPORT

AICOA INC.

We hereby certify that the material covered by this certificate has been inspected with, and has been found to meet, the applicable requirements of the contract, including any specifications forming a part of this contract and that samples representative of the material of the contract have been tested and the results of these tests are shown on this report.

Mary Ellen
Director of Manufacturing Development

Karen P. Young
Quality Assurance Manager

Director of Manufacturing Development

Quality Assurance Manager

Lot: 529552 - Mechanical, Physical, Metallurgy, Quantometer Results (cont.)
Cast Number: H2716011
Chemical Analysis: C 0.20, S 0.06, P 0.06, Mn 0.66, Si 4.6, Cr 0.01, Ni 0.02

277639 Ship Date: 2004-07-12
B.L. No. 55512
P.O. No./Govt Contract No. M 49104333

Invoice No. 49657
Ship From: RIVERDALE, IA.
Alcoa No. Item DS-74499-1

Pittsburgh, PA LAMINATE WORKS

Page

5-422-C

Reviewed

TUV SÜddeutschland Bau und Betrieb GmbH

Notified Body No. 1000 to Pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

APR 18 2005

RA

TW METALS
TEST
AUG 05 2004
ACCEPTED BY

REVIEWED

OCT 01 2004

RA

007/007

"TW Metals"

06306900147

11:32

08/05/04

JUL-13-2004 12:48

T.W. METALS

6124287669

P.01/04

11/8/04 cw

11/8/04 cw

9-460-2

PAGE 06/09

TW METALS

15:38 16306902105

11/08/2004

1, Zarolidsaya Str.
347045 Delya Kelira
Rostov region Russia

CUSTOMER

"Rural Trade Limited"
General Place, 2nd Floor #313
Waburont Drive, P.O. Box 1139, Road
Town Tortola, British Virgin Islands.

CONSIGNEE
COMMONWEALTH METAL CORP
P.O. Box 1426, 560 Sylvan
Avenue, Bagwood Cliffs, New
Jersey 07632-3139,
USA

CONTRACT NO 643/54044(46/01062

Description of Goods: Aluminum Plates

Alloy and Temper 5083 O

Lot No 12193 (1-4)

APPENDIX A 12029

Standard ASTM B 209-02, ANSI-H35.2-2001, AMS-QQ-A-250/6

ASME SB-209

Dimension 1,000*6,000*14,000

Net Weight 1580 kg Ql of packages pcs

MAQ009L-PO6313-06/M991074E2

Milling 6-650

AI
Reviewed
NOV 10 2004

MECHANICAL PROPERTIES	Units	Tensile Strength (ksi)	Yield Strength (ksi)	Elongation (in)	Rt %
Nominal requirements	min	40	18	16	
	max	51	29		
Test results		45.2-45.4	28.9-29.0	13.8	

CHEMICAL COMPOSITION, %

Element	Cu	Fe	Mn	Ni	P	S	Si	Ti	Zn	Al
Max	0.10	0.40	0.4	0.05	0.05	0.05	0.05	0.15	0.25	
Min	0.038	0.27	0.68	0.084	0.04	0.043				
Test results	0.18	0.27	0.68	0.084	0.04	0.043				

Quality Control Inspector

It is hereby certified that the above material is manufactured in compliance with the specified standards and meets the stipulated requirements

Reviewed

TUV SÜDDEUTSCHLAND Bau und Betrieb GmbH

Notified Body No. 1000 ACC to Pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

APR 18 2005

TW METALS

REPORTS

TEST NOV 08 2004

ACCEPTED BY

REVIEWED

NOV 10 2004

Capita OTT-05/01

SEP. 30. 2004 8:50AM

COMMONWEALTH METAL

NO. 463

CERTIFIED INSPECTION REPORT

Alcoa Inc.

PITTSBURGH, PA DAVENPORT WORKS
Ship From: RIVERDALES, IA.

We hereby certify that the material covered by this certificate has been inspected with, and has been found to meet, the applicable requirements described therein, retaining any specifications forming a part of the description and final surplus or scrap value of the material. The undersigned hereby certifies that the material conforms to the requirements shown on the face of this report.

Mark J. Vrabec

Mark J. Vrabec
Director of Manufacturing Development Metals

Kathleen Young

Kathleen Young
Quality Assurance Manager

269660
Ship Date
2004-05-17

132028
B.L. No.
51670

P.O. No./Govt Contract No.
M 49103120

Alcoa No. Item
DS-73930-1

Customer
TW METALS-ROGERS

Lot: 405709 - Mechanical, Physical, Metallurgy, Quantometer Results (cont.)
Cast Number H2740014
Actuals
SI PE CU MN NG CR 2H TI
-10 .22 .04 0.65 4.6 .09 .02 .02

S-477-C

Reviewed

TÜV SÜddeutschland Rau und Betrieb GmbH

Notified Body according to Pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

APR 18 2005

REVIEWED

JAN 06 2005

TW METALS	REPORT
TEST	ACCEPTED BY
MAY 25 2004	

TW METALS - SHIPPING

05/25/04 TUE 08:15 FAX 630
MAY-18-2004 12:04 T.W. METALS

6124287669 P.01/17