

MATERIAL TRACEABILITY

SALES ORDER NO.

509.8-10

DRWG. NO.

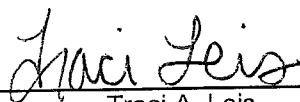
15770A

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
B IN		SB-209-5083	1.000	S374C
C OUT		SB-209-5083	0.375	S407C
A IN, D 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
End Pieces:				
Purpose	End Type	Material	Nom. Thk.	Trace Code
B IN	MITER	SB-209-5083	1.000	S374C
B OUT & C IN	MITER	SB-209-5083	0.750	S409C
C OUT & D IN	FLAT	SB-209-5083	0.625	S446C
E IN, F IN&OUT, & G IN	FLAT	SB-209-5083	0.375	S468C
G OUT	FLAT	SB-209-5083	0.500	S477C
A OUT & G OUT	FLAT	SB-209-5083	0.500	S483C
A IN, D OUT, & 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	S446C

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

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.

Zeugnisnummer:

Cert No. / No. du certificat

P* 2485792

Bestellnummer:

Order No. / No. de commande

12988

Auftrag:

Our Reference/Notre Reference:

8970/1

Produkt:

Product / Produit:

Tubes seamless extruded

Spezifikation:

Specification:

ASME SB 241

Werkstoff:

Alloy/Alliage:

5083

Zustand:

Temper/État

Abmessung

Size / Dimension

169,280 mm x 146,340 mm x 10,970 mm x 6000,00 mm

6" NB Sched. 80

Kennzeichnung

Marking/Marcage:

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

Lieferung:

Delivered Material / Matériel délivré:

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/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	46,835	27,260	18,5		72,3
2	45,820	26,970	17,5		71,8

AI
Reviewed

NOV 20 2004

Reviewed

TUM Süddeutschland Bau und Betrieb GmbH

Notified Body

Equipment Directive 97/23/EC

-Testing Laboratory- APR 18 2005

REVIEWED

NOV 20 2004

PEP 015

**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

/ Sindo

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

Der Werkstoffverständliche

83087783
08/08

07/30/04 07:50

8306900147

"TW Metals."

006/006

M83087187 7-30-04

ALUNNA

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 P2485792

Kunde:
Client:

Anvil Alloys International Ltd.

Unit 17, Pines Ind. Est
Wiggenhall Rd/Warford, Herts WD1 Great Britain

Zeugnisnummer:

Cert No. / No. du certificat:

Bestellnummer:

Order No. / No. de commande:

Auftrag:

Our Reference/Notre Reference:

18003

8985/1

T-109-C
11-2004

Produkt:

Tubes drawn seamless

Product / Produit:

ASME SB 241

Spezifikation:

Specification:

Werkstoff:

5083

Alloy/Alliage:

Abmessung:

88,900 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/Markage:

Lieferung:

Delivered Material / Matériau délivré:

pcs.

lbs

18

917

1. Chemische Analyse

Chemical Analysis / analyse chimique

Charge/ Cast No.	min. max.	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	B	Sn	Ni
2083-1/04		0,40	0,40	0,10	0,40	4,0	0,05	0,25	0,15					
		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 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 5 %	Hardness HB
min.	39,0	16,0	14,0		
max.	51,0				
1	41,180	20,445	30,0		77,8
2	40,165	21,170	30,0		78,7

AI
Reviewed
NOV 12 2004

Reviewed

REVIEWED
NOV 20 2004

TÜV SÜddeutschen/Rhein und Betrieb GmbH

Notified Body No. 186 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.: 001939 QM

Der Werkstoffverständliche

P.07/11 6124287669

T.W. METALS

JUL-15-2004

83067187

SENT BY: ANVIL ALLOYS INT;

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

PAGE 5/5

M83087187

7-6-04

ALHWA 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.

Zeugnisnummer:

Cert No. / No. du certificat:

Bestellnummer:

Order No. / No. de commande:

Ausfertigung:

Our Reference/Notre Référence:

12696

7100/1

Produkt:

Product / Produit:

Spezifikation:

Specification:

Werkstoff:

Alloy/Alliage:

Abmessungen:

Size / Dimensions:

Kennzeichnung:

Marking/Markage:

Lieferung:

Delivered Material / Matériau livré:

Unit 17, Fishers Ind. Est
Wigginhall Rd, Walsford, Herts WD11 Great Britain

Tubes seamless extruded

ASME SB 241

5083

219,080 mm x 202,720 mm x 8,180 mm x 6000,00 mm

8" NB Sched. 40

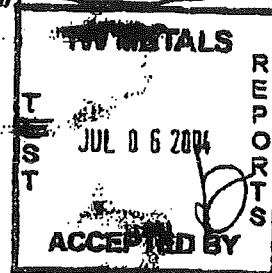
Cast No. 1332-2 - 8" NB SCH 40 - 5083 - 0 - ASME SB 241 - AWU

Zustand:

Temperatur:

A24891673

T-113-C



1. Chemische Analyse

Chemical Analysis / analyse chimique

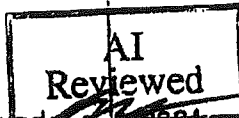
	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
Charges min.				0,40	4,0	0,05							
Cast No. max.	0,40	0,40	0,10	1,0	4,9	0,25	0,25	0,15					
1332-2/03	0,243	0,267	0,029	0,558	4,735	0,077	0,070	0,027	0,009	0,001	0,0001	0,0015	0,0020
Hydrogen content	0,11			ccm / 100 g Al									

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

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) Kgf	yield (Rp0,2) Kgf	elongation 2" %	elongation 5" %	Hardness HB
min.	39,0	16,0	14,0	12,0	
max.	51,0				
1	43,820	28,275	16,0	20,0	750
2	45,675	27,405	18,0	23,3	765



Reviewed NOV 27 2004

TUV 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:
Résultats:

04.12.03

/ Seite

Certified to EN ISO 9001:2000, valid until 2005-03-31
Certification No.: 001539 Q1

REVIEWED

NOV 27 2004

Der Werkstoffprüfer

6124287669 P.07/17

T.W. METALS

JUN - 9-2004 13:13

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 Welford, Herts WD1 Great Britain

Zeugnisnummer:

Cert No. / No. du certificat:

13098

Bestellnummer:

Order No. / No. de commande:

Auftrag:

9925/1

Our Reference/Notre Référence:

Produkt:

Product / Produit:

Spezifikation:

Specification:

Werkstoff:

Material:

Abmessung:

Size / Dimension:

Kennzeichnung:

Marking/Markage:

Lieferung:

Delivered Material / Matériau livré:

ASME SB 241

5083

114,300 mm x 102,260 mm x 6,020 mm x 6000,00 mm

4" Sched. 40

ALUMINA - Cert No. 2447-2 - 4" NB SCH 40 - 5083 - 0 - ASME SB 241

Zustand:

Temper/État

pcs.

13

lbs

935

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	0,560	4,705	0,075	0,048	0,023	0,003	0,0259	0,0088	0,0017	0,0030

Hydrogen content:

0,12

cm³/100 g Al

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

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tenile (Rm) Ks	yield (Rp0,2) Ks	elongation Z ² %	elongation A S %	Hardness HB
min.	39,0	16,0	14,0		
max.	51,0				
1	40,890	21,730	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

TW METALS

OCT 20 2004

ACCEPTED BY

Ergebnis der
Prüfungen:

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

13.08.2004

/ Since

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

Der Werkstoffverständige

OCT-01-2004 12:34

P.10/18

8306900147

07/16/04

13:41

88306900147

"TW Metals."

003/003

ALUNNA

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 Re Watford, Herts WD1 Great Britain

Produkt:

Tubes seamless extruded

Product / Produit:

Spezifikation:

ASME SB 241 ✓

Werkstoff:

5083

Alloy/Alliage:

Abmessung
Size / Dimension

60,300 mm x 52,510 mm x 3,910 mm x 6000,00 mm
2" NB Sched. 40

Kennzeichnung
Marking/Marquage:

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

Lieferung:

Delivered Material / Matériel délivré:

pcs.
35

lbs
855

Zeugnisnummer:

Cert No.: / No. du certificat:

12832

Bestellnummer:

Order No. / No. de commande

7939/2

Auftrag:

Our Reference/Notre Référence

Zustand:

Temper/État

0

1. Chemische Analyse

Chemical Analysis / analyse chimique

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Nb
Charge/ Cast No.	min. max.	0,40 0,40	0,10 0,10	0,40 1,0	4,0 4,9	0,05 0,25	0,25 0,25	0,15 0,15					
1764-3/04	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		94,2

Reviewed

TÜV SÜDDEUTSCHLAND R&U und Betrieb GmbH

Notified Body No. 1001 to Pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

APR 18 2005

Ergebnis der
Prüfungen:

Test results:

Resultats:

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

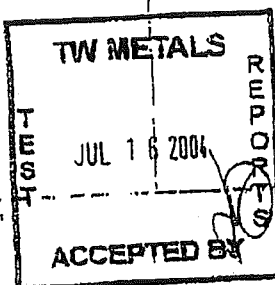
Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

29.03.04

/ Sünde



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



VIEWED
DEC 21 2004

PED OK

Det. Verksachverständige

TW METALS

JUL 16 2004

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: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:**Produkt:** Tubes seamless extruded**Product / Produit:****Spezifikation:** ASME SB 241**Specification:****Werkstoff:** 5083**Alloy/Alliage:****Abmessung:** 169,280 mm x 146,340 mm x 10,970 mm x 6000,00 mm
Size / Dimension: 6" NB Sched. 80**Kennzeichnung:** Cast No. 2158-2 - 6" NB SCH 80 - 5083-0 - ASME SB 241 - AWU**Marking/Marquage:****Lieferung:****Delivered Material / Matériel délivré:**pcs. lbs
6 1142**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					
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/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	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 Pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

**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

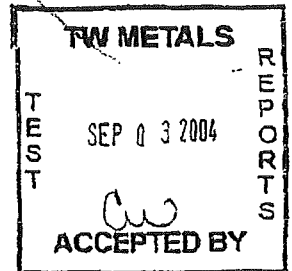
Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

03.06.2004 / Sirde

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

Der Werksachverständige

P.07/12



REVIEWED

DEC 21 2004

PED OK

TWM METALS 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:

Arvil Alloys International Ltd.

Unit 17, Fishers Ind. Est
Wiggenhall Rd Walsford, Herts WD1 6AA Great Britain

Zertifikatsnummer:
Cert. No. / No. du certificat:

13257

Beschaffungsnummer:
Order No. / No. de commande:

11086/1

Antrag:

Our Reference/Notre Référence:

Produkt:

Tubes seamless extruded

Product / Produit:

ASME SB 241

Spezifikation:

Specification:

Werkstoff:

5083

Alloy/Alliage:

Abmessung:

323,900 mm x 304,880 mm x 9,520 mm x 5000,00 - 6000,00 mm
12" NB STD. Wall

Markierung/Markage:

Cast No. 12" NB STD. Wall - 5083 - 0 - ASME SB 241 - AAU

Lieferung:

Delivered Material / Matériau livré:

pcs. lbs
10 1384

1. Chemische Analyse

Chemical Analysis / analyse chimique

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	As	Ni
Change/ 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 cm/100 g Al													
1807	0,13	0,30	0,02	0,78	4,5	0,07	0,02	0,02					
Hydrogen content: 0,12 cm/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 %	Hardness HB
min. max.	39,0 51,0	16,0	19,0		
1	43,645	24,650	21,7		
2	43,500	24,940	22,4		
3	42,630	23,925	23,6		

Reviewed

TÜV SÜDdeutsche Bau und Betrieb GmbH

Notified Body No. 1000 acc. to Pressure

Equipment Directive 97/23/EC

Testing Laboratory: TÜV SÜD
Case No. 1799 - 5 pcs. / 1807 - 5 pcs.

Test results:

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

Result:

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

11.11.2004

/ Sine



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

DEC 29 2004

PT 12-29-04

Per of

TOTAL P. 06

PO 2490244
T-151-C

TWM METALS
TEST
DEC 28 2004
ACCEPTED BY

DEC 29 2004

15/8/04
18088009

M83085261 12/20/04 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: 48,250 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
Tempers/Etat:



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	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 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 No. 1715 acc. to Pressure

Equipment Directive 97/23/EC

Testing Laboratory-

APR 18 2005

JAN 06 2005

REP
SICErgebnis 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

Resultats:

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

05.05.03

Certified acc. to DIN EN ISO 9002 valid until 2007-07-03

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:

Amvil Alloys International Ltd.

Unit 17, Fishers Ind. Est
Wiggenhall RoWelford, 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 249 5637

T-175-C

K12505

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 - AMV ✓

Marking/Markage:

Lieferung:

Delivered Material / Matériel délivré

pcs.
10

lbs
2656

1. Chemische Analyse

Chemical Analysis / analyse chimique

	Si	Fe	Cu	Mn	Ni	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
Charge/ Cast No.	min. max.	0,40 0,40	0,10 0,10	0,40 1,0	4,0 4,9	0,05 0,25	0,25 0,25	0,15 0,15					
01/401805		0,11 0,29	0,03 0,03	0,76 0,76	4,7 4,7	0,07 0,07	0,04 0,04	0,01 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) Rel	elongation Z %	elongation A %	Hardness HB
min. max.	39,0 51,0	16,0	14,0		
1	44,080	25,665	23,6		
2	42,080	21,750	28,9		

Reviewed

TÜV SÜDDEUTSCHLAND AG und Betrieb GmbH

Notified body No. 3001 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

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

27.10.2004

/ Sindre

Certified acc. to DIN EN ISO 9001:2000, valid until 2305-12-31

P 07/11

DEC-28-2004 10:39

83088087
10 Jan 40

18/15/2004 13:40

6306900147

TWMETALS

PAGE 03/03

14/10 2004 18:05 FAX +30 22620 53683

ELVA S.A./V. GRIMANIS

001/001

m49107483 10-1504

ELVAL

HELLENIC ALUMINIUM INDUSTRY S.A.

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

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

- WILL TEST CERTIFICATE -

Crtf No : 55717

DATE 11/06/2004

Customer : COMMONWEALTH - USA
Order No : 0 1883
Your Ref. : 6310-06Notes : 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

P02491884
12/16/04

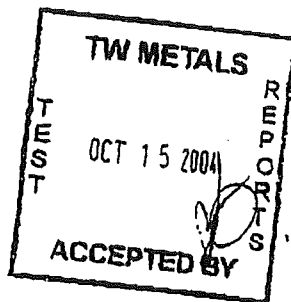
PRODUCTS LIST

OrdLine	Product Name	Alloy	Temper	Thickn /Step	Width	Length	Coil No	Si	Fe	Mn	Mg	Cu	Ti	Zn	Cr
0188301	ALUMINIUM SHEETS	5083	-0-	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	RPW N/mm2	RD2 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 OK

Reviewed

TÜV SÜDDEUTSCHLAND AG und Betrieb GmbH

Notified body for the 900 to Pressure

Equipment Directive 97/23/EC

-Testing Laboratory- APR 18 2005

TD

14/10/2004

M8305187 6-11-04 10:51:13

Test Report

BRITISH ALUMINIUM TUBES

Division of British Aluminium Specialty Extrusions and Tubes Ltd.
 Spadley Road, Redditch, Worcester B98 7HN, England
 Telephone (01527) 464500, Facsimile (01527) 404501

Customer
 ANVIL ALLOYS INTERNATIONAL LTD E/B
 ANVIL HOUSE
 VALE INDUSTRIAL PARK
 TOLLETT LANE
 WATFORD HERTS
 WD1 8QP

Your Order No : 10219
 Our Order No : 71615
 Packing Note No : 83414
 Date : 16 Mar 2001
 Package : 1 BUNDLES

Customer Copy No. 83414/1

ASME CERTIFICATE OF CONFORMITY

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

602473330
 6/15/04

SEAMLESS DRAWN TUBES - 73.000MM OD X 3.140MM WT

No of Pieces	Net Weight	Tensile Test			Chemical Analysis %										H cal 100gm
		Lot Test No.	0.2% Proof Stress ksi	Tensile Stress ksi	Elongation 2in	Si	Fe	Cu	Mn	Cr	Ni	Zn	Ti		
1	265	190423	19.73	45.40	20	.16	.39	.05	.66	4.56	.15	.03	.03		14
1	152	190424	20.16	45.25	23	.16	.39	.05	.66	4.56	.15	.03	.03		14
2	75	190427	20.60	45.54	21	.16	.40	.04	.69	4.16	.14	.02	.03		14

TEST
 JUN 11 2004
 TW METALS
 REPORT
 ACCEPTED BY

ASME CONFORMITY STATEMENT REQD. TEST CERTS TO EN 10204 2.1B
 WT + TOL GUIDANCE ONLY (BASED ON EN 10204 2.1B AND DDN 50419 3.10)

TUV SÜDdeutsches Bau und Betrieb GmbH

Notified Body No. 1001 to Pressure

Equipment Directive 97/23/EC

Testing Laboratory

Registered in England No. 30581285
 Registered Office: The Victoria, Market Over, Bedfordshire
 VAT Registration No. GB 598 514E 46

APR 18 2005

REVIEWED

APR 14 2004

TW METALS - SHIPPING

06/11/04 FRI 09:24 FAX 630

SENT BY: ANVIL ALLOYS INT;

44 01929 800722 : 10-JUN-04 9:05;


PAGE 2

13:12

13:12

13:12

6124237669 05/17

5-24-04 

P02472328
RE
6/2/04

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

TEMPER: 0

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

ACCEPTED BY

JUN 01 2004

APR 18 2005

APR 18 2003

49099407

CERTIFICATE OF SECTION REPORT

Alcoa

PITTSBURGH, PA

DAVID H. HARRIS

Ship From: HAVENDA

We hereby certify that the material covered by this certificate has been inspected and that the inspection was made in accordance with the applicable requirements of the specification and that the material conforms to the requirements of the specification and that the material is suitable for the intended use.

Mark J. Vignone
Director of Manufacturing Development

Kenton R. Young
Quality Assurance Manager

267953 Ship Date 2004-05-05
B.L. No. 51199
Invoice No. 30251
Alcoa No. Item OS-73311-1
Customer TW METALS-ROGERS
P.O. No./Govt Contract No. N 49101119

Ship To: TW METALS
14600 JAMES RD.
ROGERS, MI 48374

Item Description
375 IN TK X.60.000 IN W X 144.000 IN LN (N) A/T 5083-
Q STORAGE TANK & CRYOGENIC PLATE MILL FINISH,
SAVED ITEM 11452. PER ASME-SB-209 REV A99 & EXCEPT MARKING AMS-QQ-
A-350/6 & EXCEPT MARKING ASTM A209 REV 02A &
EXCEPT MARKING AMS4056 REV F DIMENSIONAL
TOLERANCES F ANSII H5.2 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

TW METALS REPORTS
MAY 06 2004
TEST
ACCEPTED BY

Num	Package Ticket	Lot	Weight	Quantity	UOM	Pc Id/Sevl
1	766984	086463	3468	11	PC	
2	767000	486463	7266	24	PC	
3	767001	486463	1573	5	PC	
			12307	40		

Notes for CQR: 0146717.1
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: 0146717.1 -Specification Limits

Temp	Dir	Longitudinal	UTS		ELAD								
			KSI	PCT									
0			Max	29.0	16								
			Min	18.0									
Chemical Composition			SI	FE	CU	MN	CR	ZN	TI	Other	Total	Aluminum	
			.40	.40	.10	1.0	4.9	.25	.25	.15	.05	.15	
			Max										
			Min										
Alloy 5083													

Alloy 5083

REVIEWED

Lot: 486463 -Mechanical, Physical, Metallography, Quantometer Results
No. Test 3
Dir Longitudinal
Max 44.1
Min 43.6

2508/ Süddeutsche Bau und Betrieb GmbH

6000 TO Pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

APP 1.8.2005

6124287659

P. 02/04

MAY-06-2004 11:37

T.W. METALS

OK

CERTIFICATE OF INSPECTION REPORT

ALCC

PITTSBURGH, PA DAVENPORT, IA
Ship From: RIVERC

We hereby certify the material covered by this certificate has been inspected with, and has been found to meet the applicable requirements of the specification, including any special requirements, and that the material conforms to the requirements of the material and the composition limits and has the mechanical properties, physical, chemical and mechanical properties, and has been found to meet the requirements of the specification.

Mark J. Vachic
Director of Manufacturing Development

Kenton P. Young
Kenton P. Young
Quality Assurance Manager

267953
Ship Date
2004-05-05
P.O. No./Civil Contract No.
N 49103119

124053
B.L. No.
51199
Invoice No.
38251
Alcoa No. Item
09-73931-1

Customer

TW METALS-ROCKERS

9-407-C

Results (cont.)

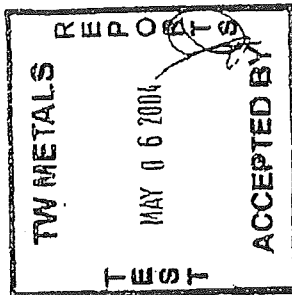
Lot: 496463 - Mechanical, Physical, Metallurgical, Quantometer
Cast Number 112700022
Chemical Si .09 .20 .05 0.65 4.4 .09 .02 .02
Actuals

Reviewed

TÜV 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]
APR 25 2005

08/04/04 14:51 6306900147

TW METALS.

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 Secr

+30226203147

T-269 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, 32 157, 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. : 5049-06INVOICE NR:
Notes : INTERNAL PACKING LIST NR: 80005715
ACCORDING TO AA, ASTM B209/02, ASME B209/02 AND AMSDDA-250/6 SPECIFICATIONS.

TEST REPORT ACC TO EN 10204/3.1B

P02481668
ME
8/20/04

PRODUCTS LIST

A. CHEMICAL ANALYSIS (%)

OrdLine	Product Name	Alloy	Temper	Thickn / Step	Width	Length	Coil No	Si	Fe	Mn	Mg	Cu	Ti	Zn	Q
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	ROZ N/mm2	ELONG %
04201630	040180401	1630	RL	311.0	188.6	16.5
			Kai :	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 AG und Betrieb GmbH

Notified Body for Pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

Art. SIREA Di BOND

B.R.

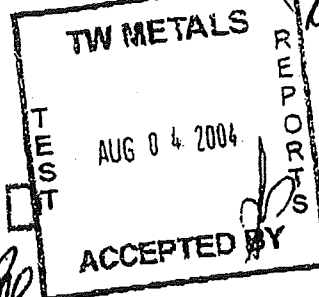
K. MAZIMAKIS

At Reviewed

5/27/04

REVIEWED

AUG 26 2004

P60
o/c

CERTIFICATION REPORT

ALCOA

PITTSBURGH, PA DAVENPORT

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.

Pac.

Mark J. Vrablic

Director of Manufacturing Davenport Works

Kenton P. Young

Quality Assurance Manager

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 ANS H35.2 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

202-181668
728
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	UTS	KSI	EL4D	PCT
0	Longitudinal	Max	51.0	29.0	
		Min	40.0	18.0	16
Chemical Composition					
		SI	FE	CU	MN
		Max	.40	.40	1.0
		Min			4.9
Alloy 5083					
		CR	ZN	TI	Each
					.15
					.05
					.05
					.05

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

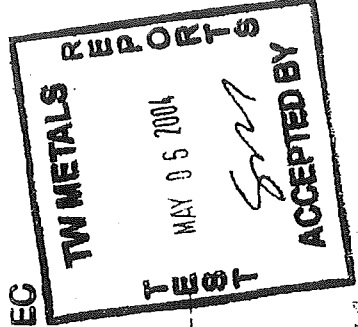
Temp	Dir	No.	Test	UTS	KSI	EL4D	PCT
0	Longitudinal	3		Max	45.9	28.2	21.2
				Min	45.3	27.2	19.6

Equipment Directive 97/23/EC

Testing Laboratory

APR 16 2005

REMAIN



REVIEWED

APR 25 2005

PEO

CERTIFIED INSPECTION REPORT

Alcoa Inc.

PITTSBURGH, PA DAVENPORT ORKS
Ship From: RIVERDALE, 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, 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

Mark J. Vrabec
Director of Manufacturing Davenport Works

Kenton P. Young

Kenton P. Young
Quality Assurance Manager

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

M 49101149

TW METALS-CINCINN

Invoice No. Item
38205 DS-72428-1

S-409-C

(cont.)

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

Reviewed

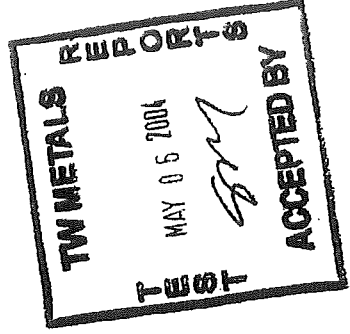
TUV SÜddeutschland Rail und Betrieb GmbH

Notified body for pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

APR 18 2004



REVIEWED

AUG 26 2004

APR 26/04

JUL 1 2004 7:16AM

COMMONWEALTH METAL

NO. 1-451

Page 1

commonwealth PD # M49103125

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

HELLENIC ALUMINIUM INDUSTRY S.A.

FAX +30 2620-32 286, 32 237, Tlx +601-299327, 299324, 299325, 299326

Page 1

- MILL TEST CERTIFICATE -

D-T-10 : 54989

DATE : 25/05/2004

Customer : COMMONWEALTH - USA

Order No : 0 0763

Your Ref. : 5323-06

Notes : INVOICE NO. 4309
INTERNAL PACKING LIST NO. 04003902 PD M49103125
ACCORDING TO AL, ASTM B209, AMS-020-230/6 AND AMS 9209 SPECIFICATIONS

TEST REPORT ACC TO EN 10204/2.1B

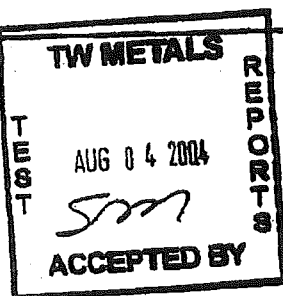
PRODUCTS LIST

A. CHEMICAL ANALYSIS (%)

Order Line	Product Name	Alloy	Temper	Thickness / Strip Width	Length	Coil No	Si	Fe	Mn	Mg	Cu	Ti	Zn	Cr
ALUMINIUM SHEETS														
0076301		5083	0	9.3200 Inches : .37800	1524.00 3657.60 60.000 144.000	040453101	.11	.31	.43	4.30	.032	.006	.019	.180
0076302		5083	0	12.7000 Inches : .50000	1524.00 3657.60 60.000 144.000	040453101	.12	.33	.55	4.54	.032	.013	.017	.118

B. MECHANICAL PROPERTIES

Heat No	Coil No	Test No	Posit	RPB N/mm2	R02 N/mm2	ELONG %
04003900	040453101	2989	RL	313.0	190.2	15.8
			Kel	45.389	27.981	
04001610	040453101	3943	RL	313.0	172.0	18.0
			Kel	45.389	25.087	



Quality Control Department

REVIEWED
JAN 19 2005

PER OK

Item # 11450 & 11452

Attn: Sue McD & Tom Crippen

Reviewed

TUV SÜddeutschland Güte und Betrieb GmbH

Notified Body No. 1001 Pressure

Equipment Directive 97/23/EC

Testing Laboratory - APR 18 2005

49103125

Corus Aluminium Walzprodukte GmbH
Carl-Spaeter-Str. 10
58070 Koblenz



Inspection Certificate (EN 10204/3.1.B)

Page 2 from 2

Certificate No. : 879180

Purchaser : CORUS ALUMINUM ROLLED PRODUCTS USA- A DIVISION
475 N. MARTINDALE RD./S. 400
SCHAUMBURG, IL 60173

Purchase Order No. : 1843/MA49186732/TW METALS
Order number : 78131
Order item :
Lot No. :
Dimensions : 18.57x12.43x.400x7.315.200 mm

Material : 1621508
Cust. part no. :
Mat. Design. :
Alloy :
Temper :
Drawing number :
Quantity : 3

Master standard

ASTM B 209 2002a
AMS-QQ-A-2000 AUG 1997

9-446-C
PO 2491687
Re
11/11/04

TECHNOLOGICAL PROPERTIES

Mechanical properties

Temper: O

	Pl-No.	Spec. No.	Rp1,0	Rp0,2 ksi	Rm ksi	A2" %	Z	Rp/Rm
L Min:	-	-	-	18,0	40,0	16,0	-	-
Max:	-	-	-	29,0	51,0	-	-	-
Act.:	-	1	-	24,5	45,0	25,4	-	-
Act.:	-	2	-	28,3	45,1	22,8	-	-

Chemical composition in %, remainder Al

Core Alloy : 5053 Cast No. : 5-04-1000
Alloy spec. : ASTM B 209 2002a

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	others each	others total
Min:	-	-	-	0,40	4,0	0,05	-	-	-	-
Max:	0,40	0,40	0,10	1,0	4,9	0,25	0,25	0,15	0,05	0,15
act.:	0,2850	0,2140	0,0450	0,8380	4,8870	0,1080	0,1010	0,0272	0,0103	0,0387

REVIEWED

Other tests

OCT 29 2004

PT

Dimensional control:

Surface control:

Quality Assurance, 30.08.2004

Reviewed

TUV Süddeutschland Bau und Betrieb GmbH

M. Thon

Notified Body for CE mark to Pressure

Equipment Directive 97/23/EC

-Testing Laboratory- APR 14 2005

AI
Reviewed

OCT 29 2004

REVIEWED

OCT 20 2004

PT

TW METALS

TEST

OCT 07 2004

ACCEPTED BY

PED OK

JUL. 1. 2004 7:16AM

COMMONWEALTH METAL

NO. 119

P. 3/3

commonwealth PD # M49103125

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

HELLENIC ALUMINIUM INDUSTRY S.A.

FAX +30 2620-32 236, 32 237, Tlx +601-299327, 299324, 299325, 299326

Page 1

-WILL TEST CERTIFICATE-

C-11 No : 54389

DATE 25/05/2004

Customer : COMMONWEALTH - USA

Order No : 0762

Your Ref. : 5252-06

INVOICE No:

4309

Notes :

INTERNAL PRODUCT LIST NO: 00000000

PD M49103125

ACCORDING TO AL. ASTM B209, AMS 4046-2006 AND AMS 4049 SPECIFICATIONS.

TEST REPORT ACC TO EN 10604/2.18

PRODUCTS LIST

A. CHEMICAL ANALYSIS (%)

On-line Product Name	Alloy	Temper	Thickn /Step Width	Length	Coil No	Si	Fe	Mn	Mg	Cu	Ti	Zn	Cr	
ALUMINIUM SHEETS														
0076301	5083	-0-	9.3550	1594.00	3657.60	040457301	.11	.31	.43	4.30	.032	.006	.019	.180
		Inches :	.37500	60.000	144.000									
0076302	5083	-0-	12.7000	1594.00	3657.60	040453101	.12	.33	.45	4.54	.032	.013	.017	.118
		Inches :	.50000	60.000	144.000									

B. MECHANICAL PROPERTIES

Heat No	Coil No	Test No	Posit	RPW N/mm ²	ROZ N/mm ²	ELONG %
04045000	040457301	2989	RL	313.0	190.2	15.8
			Kel :	45.389	27.581	
04045100	040453101	3943	RL	313.0	173.0	18.0
			Kel :	45.389	25.087	

TW METALS

TEST

AUG 04 2004

ACCEPTED BY

PEDEK

Item # 11450 + 11452

AI

Reviewed

DEC 03 2004

Quality Control Department

P. K. R. L. HADJITZIS

REVIEWED

DEC 03 2004

Reviewed
Att: Sue McD +
Tom Crippen

TUV SÜDDEUTSCHLAND RHEINLAND BETRIEB GMBH

Notified Body No. 1000 to Pressure

Equipment Directive 97/23/EC

-Testing Laboratory- APR 18 2005

M49103125

49K-138

CERTIFIED INSPECTION REPORT

Alcoa Inc.

PITTSBURGH, PA

DAVENPORT WORKS

Ship From: REVERDALE, LA.

The hereby certifies that the material covered by this certificate has been inspected with, and has been found to meet the applicable requirements specified therein, including any specifications forming a part of the description and that samples representative of the material have been examined and had the mechanical properties shown on this report.

John J. Wicks

John J. Wicks
Director of Manufacturing Development

Karen P. Young

Karen P. Young
Quality Assurance Manager

269660
Ship Date
2004-05-17
P.O. No./Contract No.
N 49101120

132028
B.L. No.
51670

Invoice No.
99481

Alcoa No. Item
05-73930-1

Page 1

Ship To: TW METALS
14600 JAMES RD.
ROGERS, MN 55374

Item Description
500 IN TH X 60.000 IN W X 144.000 IN LN (N) A/T 5083-
O STORAGE TANK & CRYOGENIC PLATE MILL FINISH,
SAVED ITEM 11450. PER ASME-SB-209 REV A99 & EXCEPT MARKING AMS-QQ-A-250/6 & EXCEPT MARKING ASTM A242 & EXCEPT MARKING ASTM A242 F DIMENSIONAL TOLERANCES F ANSII 15.2 REV 2003 ((MARKED)) 1 PAPER INTERLEAVED
SKID WGT: 6000 LB QUAN TOL +/-40
1 COR 0146716 REV 01 CUST REQ 04-05-07
07 *** W/B 04-05-08 ***

Item	Package Ticket	Lot	Weight	Quantity	UDN	Pc Id/Serl
1	773225	485709	6314	15	PC	
2	773258	485709	4636	11	PC	
			10950	26		

Notes for COR: 0146716.1
PRODUCT PRODUCED AND MARKED TO THE REQUIREMENTS OF AMS-QQ-A-250/6 ALSO MEETS THE REQUIREMENTS OF QQ-A-250/60. PRODUCT PRODUCED AND MARKED TO THE REQUIREMENTS OF QQ-A-250/66 ALSO MEETS THE REQUIREMENTS OF AMS-QQ-A-250/6.

COR: 0146716.1 -Specification Limits

Temp Dir	UTS		TYS		SL40	
	KSI	KSI	KSI	KSI	ECT	ECT
Longitudinal	Max	51.0	29.0			
	Min	40.0	18.0		16	
Chemical Composition						
Alloy 5083	Max	.50	.40	.10	1.0	
	Min				.40	

Lot: 485709 -Mechanical, Physical, Metallography, Quantometer Results

Temp Dir	UTS	TYS	SL40	SL40
0	KSI	KSI	ECT	ECT
Longitudinal	Max	44.5	24.1	23.2
	Min	41.5	24	22.1

Reviewed

TUV Suiddeutsche AG und Betrieb GmbH
Notified Body No. 000010 Pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

APR 18 2005

TW METALS - SHIPPING

TW METALS
TEST
MAY 25 2004
ACCEPTED

05/25/04 TUE 08:15 FAX 630

MAY-18-2004 12:04

T.E. TITLES

JAN 25 2005

PER QK

REVIEWED

JAN 06 2005

CERTIFIED INSPECTION REPORT

Alcoa Inc.

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

I hereby certify that the material covered by this certificate has been inspected with, and has been found to meet, the applicable requirements detailed therein, retaining any specifications forming a part of the description and that such a representation of the material meets the comparison first and that the mechanical properties shown on the label of this sheet are correct.

Mark J. Vrabec
Mark J. Vrabec
Director of Manufacturing Development

Kathleen P. Young
Kathleen P. Young
Quality Assurance Manager

269660
Ship Date
2004-05-17
P.O. No./Govt Contract No.
M 49103120

132028
B.L. No.
51670
Invoice No.
19481
Alcoa No. Item
05-71930-1

Customer
TW METALS-ROGERS

Lot: 485709 - Mechanical, Physical, Metallography, Quantometer Results (cont.)
Cast Number Chemical SI PE CU IN HG CR 2H TI
H2740014 Actuals .10 .22 .04 0.65 4.6 .09 .02 .02

(cont.)

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

REPORTS

MAY 25 2004

TEST

ACCEPTED BY

CERTIFIED INSPECTION REPORT

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 test samples representative of the material and the composition limits and the mechanical properties shown on the face of this certificate.

Mark J. Vrabec
Director of Manufacturing Development Works

Kenton P. Young
Quality Assurance Manager

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

6034
B.L. No.
67081

Invoice No.
79299

Alcoa No. Item
DS-81952-1

CUSTOMER
TW METALS CINCINNATI

888581

5504-C
Notes

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 ASTM209 REV 04 &
EXCEPT MARKING ANSI4056 REV F DIMENSIONAL
TOLERANCES F ANS135.2 REV 2003
((MARKED)) INTERLEAVED SKID WGT: 6000 LB QUAN TOL +/-
40 & QOR 0101480 REV 08 CUST REQ 05-01-
07 *** W/E 05-01-08 ***

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

Notes for QOR: 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.

QOR: 0101480.8 -Specification Limits

Temp Dir	Longitudinal	Max	Min	UTS	TYS	EL4D	Other	Total	Aluminum					
				KSI	KSI	PCT				Each				
O		51.0	40.0	29.0	18.0	16								
Chemical Composition														
		Max	Min	SI	FE	CU	MN	MG	CR	ZN	TI	Each	Total	Aluminum
				.40	.40	.10	1.0	4.9	.25	.25	.15	.05	.15	REMAIN
								.40	4.0	.05				
Alloy 5083										-----				
Lot:	701492	-Mechanical, Physical, Metallography, Quantometer Results												
Temp Dir	Longitudinal	3	Max	Min	UTS	TYS	EL4D	Other	Total	Aluminum				
					KSI	KSI	PCT				Each			
O			46	45.4	46	45.4	29.2							

TW METALS REPORTS
TEST
JAN 11 2005
ACCEPTED BY
Sm

FEB 01 2005

A. J. M

2-105
Ed

TUV Sueddeutschland AG und Betrieb GmbH
Notified Body No. 200010 Pressing

Equipment Directive 97/23/EC

-Testing Laboratory-

APR 18 2005

CERTIFIED INSPECTION REPORT

Alcoa Inc.

PITTSBURGH, PA DAVENPORT RKS
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. Vrabec

Mark J. Vrabec
Director of Manufacturing Development Works

Karen R. Young

Karen R. Young
Quality Assurance Manager

321315
Ship Date
2005-01-07
B.L. No.
67081
P.O. No./Contract No.
M 49118997

Invoice No.
79299
Alcoa No. Item
DS-81952-1
Customer
TW METALS-CINCINN

Lot: 701492 - Mechanical, Physical, Metallography, Quantometer Results (cont.)

Cast Number H2944031
Chemical
Actuals
Si .11 .22
Fe .04
Cu .04
Mn .04
MG 4.5
CR .08
ZN .02
TI .02

S-504-C

UV Süddeutschland Ray and Betrieb GmbH
Notified Body No. 0010 Pressure
Equipment Directive 97/23/EC
Testing Laboratory- APR 18 2005

RECEIVED
FEB 01 2005

A. J. J. J.

TW METALS REPORT
JAN 11 2005
TEST
ACCEPTED BY
SM