

MATERIAL TRACEABILITY

SALES ORDER NO. 509.9-13 DRWG. NO. 15771A

Nozzles:				
Purpose	Dia. or Size	Material	Nozzle Thk. Nom.	Trace Code
B IN&OUT	4.500	SB-241-5083	0.237	T119C
A IN&OUT & C IN&OUT	6.625	SB-241-5083	0.280	T128C
D IN	16.000	SB-209-5083	0.250	S472C
D OUT & E IN	20.000	SB-209-5083	0.250	S472C
E OUT	24.000	SB-209-5083	0.250	S472C
Headers:				
Purpose		Material	Nom. Thk.	Trace Code
D IN&OUT & E IN&OUT		SB-209-5083	0.375	S466C
A IN&OUT, B IN&OUT, & C IN&OUT		SB-209-5083	0.250	S472C
End Pieces:				
Purpose	End Type	Material	Nom. Thk.	Trace Code
C OUT	FLAT	SB-209-5083	0.750	S409C
B IN&OUT & C IN	FLAT	SB-209-5083	0.625	S446C
A IN&OUT	FLAT	SB-209-5083	1.000	S460C
D IN&OUT & E IN&OUT	FLAT	SB-209-5083	1.000	S461C
Other:				
Purpose	Description	ASTM or ASME Code	Trace Code	
D IN&OUT & E IN&OUT	1.000" SPLITTER PLATES	SB209	S448C	

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

M8308741 10-20-04

ALUMINA AG

Uelzener-Wege 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/Marque:

Lieferung:

Delivered Material / Matériau délivré:

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" NB SCH 40 - 5083 - 0 - ASME SB 241

Zeugnisnummer:

Cert No. / No. du certificat:

Bestellnummer:

Order No. / No. de commande

Auftrag:

Our Reference/Notre Reference:

13098

9925/1

Zustand:

Temper/Etat

0

AI
Reviewed

DEC 10 2004

1. Chemische Analyse

Chemical Analysis / analyse chimique

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
Charge/ Cast No.	min. max.			0,40 1,0	4,0 4,9	0,05 0,25	0,25	0,15					
2447-2/04	0,192	0,323	0,030	0,569	4,705	0,075	0,048	0,023	0,003	0,0259	0,0008	0,0017	0,0030

Hydrogen content: 0,12 cm/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. max.	39,0 51,0	16,0	14,0		
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

Normen und Standards: EN 10204-2, EN 10204-3, EN 10204-4, EN 10204-5, EN 10204-6, EN 10204-7, EN 10204-8, EN 10204-9, EN 10204-10, EN 10204-11, EN 10204-12, EN 10204-13, EN 10204-14, EN 10204-15, EN 10204-16, EN 10204-17, EN 10204-18, EN 10204-19, EN 10204-20, EN 10204-21, EN 10204-22, EN 10204-23, EN 10204-24, EN 10204-25, EN 10204-26, EN 10204-27, EN 10204-28, EN 10204-29, EN 10204-30, EN 10204-31, EN 10204-32, EN 10204-33, EN 10204-34, EN 10204-35, EN 10204-36, EN 10204-37, EN 10204-38, EN 10204-39, EN 10204-40, EN 10204-41, EN 10204-42, EN 10204-43, EN 10204-44, EN 10204-45, EN 10204-46, EN 10204-47, EN 10204-48, EN 10204-49, EN 10204-50, EN 10204-51, EN 10204-52, EN 10204-53, EN 10204-54, EN 10204-55, EN 10204-56, EN 10204-57, EN 10204-58, EN 10204-59, EN 10204-60, EN 10204-61, EN 10204-62, EN 10204-63, EN 10204-64, EN 10204-65, EN 10204-66, EN 10204-67, EN 10204-68, EN 10204-69, EN 10204-70, EN 10204-71, EN 10204-72, EN 10204-73, EN 10204-74, EN 10204-75, EN 10204-76, EN 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SENT BY: ANVIL ALLOYS INT;

01928 800722 ; 9-NOV-04 13:28;

PAGE 4/8

P-128-C

ALUNDA 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: Anvil Alloys International Ltd.
Client:Unit 17, Fishers Ind Est
Wiggenhall Rd/Welford, Herts WD1 Great BritainZeugnisnummer:
Cert No. / No. du certificatBestellnummer:
Order No. / No. de commandeAuftrag:
Our Reference/Notre Référence:

Produkt: Tubes seamless extruded

Product / Produit: ASME SB 241

Spezifikation: 5083

Specification: 5083

Werkstoff: 5083

Material: 5083

Abmessung: 168,280 mm x 154,080 mm x 7,110 mm x 6000,00 mm

Size / Dimension: 6" NB Sched 40

Kennzeichnung: Cast No. 2114-1-6" NB-Sched 5083-0-ASME-SB241-AWU

Markierung: Markierung

Lieferung: pos. lbs

Delivered Material / Matériau livré: 10 1283

1. Chemische Analyse Chemical Analysis / analyse chimique

	C	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Al	Si	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					
2114-1/04	0,163	0,281	0,023	0,534	4,695	0,077	0,008	0,022	0,002	0,0021	0,0003	0,0015	0,0030
Hydrogen content:	0,12 cm ³ /100 g Al												

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

2. Mechanische Eigenschaften Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	temale (Rm) Ksi	Yield (R _{0.2}) Ksi	elongation Z" %	elongation A %	Hardness HB
min.	39,0	16,0	14,0		
max.	51,0				
1	45,965	75,825	20,5		76,2
2	43,935	26,825	22,0		75,3

Reviewed

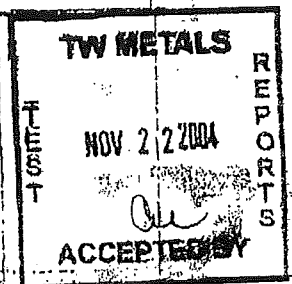
TÜV Süddeutschland Bau und Betrieb GmbH

Notified body: 36 acc. to Pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

APR 01 2005

Ergebnis der
Prüfung:

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 l'acceptation de la commande.

24.05.2004

/ Gültig

Conformé avec: to DIN EN ISO 9001:2000, wird nach 2000-03-09
Certificate No.: 001959 QM

Der Werkstoffverständige

10/15/2004 13:40

6306900T47

TWMETALS

PAGE 03/03

14/10 2004 15:05 FAX +30 22620 53583

ELVA S.A./V. GRIMANIS

001/001

m49107483 10-1504



ATHENS - LAMIA NATIONAL ROAD (57th Km), 32011 INORTA VIOTIA, GREECE
TEL: +30 22620-32 269, 31503, 32 241

FAX: +30 22620-32 236, 32 237, TLX: +601-299327, 299324, 299325, 299326

HELLENIC ALUMINIUM INDUSTRY S.A.

- MILL TEST CERTIFICATE -

Crtf No : 55717
DATE 11/9/06/2004

Customer : COMMONWEALTH - USA
Order No : 0 1883
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 A9ME B209 SPECIFICATIONS.

TEST REPORT ACC TO EN 10204/3.1B

P02491884
12/10/04

PRODUCTS LIST

A. CHEMICAL ANALYSIS (%)

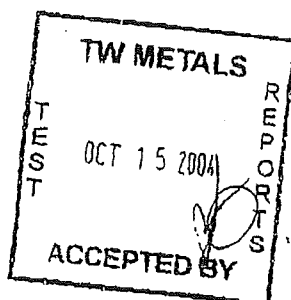
OrdLine	Product Name	Alloy	Temper	Thickn /Step	Width	Length	Coil No	Si	Fe	Mn	Mg	Cu	Ti	Zn	Cr
0188301	ALUMINIUM SHEETS	5083	-0-	6.3500	1524.00	3657.60	040555201	.12	.33	.60	4.77	.029	.015	.016	.092
			Inches :	.25000	60.000	144.000									

B. MECHANICAL PROPERTIES

Heat No	Coil No	Test No	Posit	RPM N/mm2	RO2 N/mm2	ELONG %
04201620	040555201	4563	AL	310.4	171.8	20.6
			Ksi :	45.012	24.913	

Quality Control Department

PIP
D. MOUTSOPALOS



REVIEWED

15

PEN BK

Reviewed

TÜV SÜddeutschland Bau und Betrieb GmbH

Notified under 97/23/EC Pressure

Equipment Directive 97/23/EC

Testing 01/01/2005 APR 01 2005

T-2

m49107483

08/04/04 14:51 86306900147

"TW Metals."

06/06

04/08 '04 18:16 FAX 00302262031494

ELVAL S.A. SALES DEP. - COMMONWEALTH

@001/001

jobnr

m4909403 8-404

04-AUG-04 16:52

FROM Elval SA Plant 0001

+902262031347

T-269 P.001/001 F-099

5-466-C



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

HELLENIC ALUMINIUM INDUSTRY S.A.

FAX: +30 2620-32 236, 32 137, TLX: +601-290327, 299324, 299325, 200326

Page: 1

- MILL TEST CERTIFICATE -

Drif No: 53084
DATE: 05/04/2004

Customer: COMMONWEALTH - USA
Order No: 0 0415
Your Ref.: S049-06

INVOICE NO:
Notes: INTERNAL PACKING LIST NO: 00405715
ACCORDING TO EN 5737/02, EN 5739/02 AND EN 5738/02 SPECIFICATIONS.
TEST REPORT ACC TO EN 10204/3.1B

P02488581
pe
12/3/04

PRODUCTS LIST							A. CHEMICAL ANALYSIS (%)								
Order Line	Product Name	Alloy	Temper	Thickness	Width	Length	Coil No	Si	Fe	Mn	Mg	Cu	Ti	Zn	Cr
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		2699	RL	308.4	159.6	17.7
				Ksi	44.432	23.144	

Quality Control Department

P/P R
J. PRITSKOPOLDS

AI
Reviewed
DEC 02 2004

RED OK

Art. Sirca Di Bond
B.R.
K. MAZIMAKIS

TW METALS
TEST
AUG 04 2004
ACCEPTED BY

Reviewed
TLV Süddeutscher Bau und Betrieb GmbH
Notified
Equipment Directive 97/23/EC
Testing Laboratory- APR 01 2005

4909403

CERTIFICATE OF INSPECTION REPORT

Alcoa, Inc.

PITTSBURGH, PA DAVENPORT WORKS
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. Vrablac
Director of Manufacturing Davenport Works

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

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 I H 35.2 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
2-481668
722
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	TYS	EL4D
0 Longitudinal	KSI	KSI	PCT
Max	51.0	29.0	
Min	40.0	18.0	16
Chemical Composition	SI	FE	CU MN
Max	.40	.40	.10 1.0
Min			.40
Alloy 5083			

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

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

Reviewed

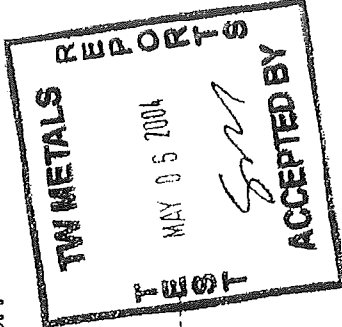
TUV Suddentshland Bau und Betrieb GmbH

Notified by TUV Suddentshland Bau und Betrieb GmbH acc. to Pressure

Other Total All European Directive 97/23/EC

Testing Laboratory

APR 01 2005



REVIEWED

APR 25 2005

P 60

CERTIFIED INSPECTION REPORT

Alcoa Inc.

PITTSBURGH, PA DAVENPORT WORKS
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.

Per: *Mark J. Vrabec*

Mark J. Vrabec
Director of Manufacturing Davenport Works.

Kenton P. Young

Kenton P. Young
Quality Assurance Manager

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

124061
B.L. No.
51172
Invoice No.
38205
Alcoa No. Item
DS-72428-1
Customer
TW METALS-CINCINN

S-409-C

Lot: 424404 - Mechanical, Physical, Metallography, Quantometer Results (cont.)

Cast Number	SI	FE	CU	MN	MG	CR	ZN	TI
H274101D	.10	.22	.04	0.65	4.5	.09	.01	.02

Reviewed

TUV SÜDDEUTSCHLAND GERMANY

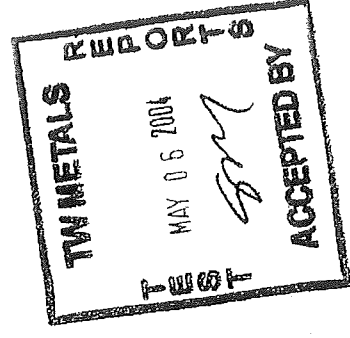
Notified Body for Pressure

Equipment and Components

Testing Laboratory

APR 01 2005

T.R.



Reviewed

ASA 6/27/04

REVIEWED

AUG 26 2004 *ple*

Corus Aluminium Walzprodukte GmbH
Carl-Spaeter-Str. 10
56070 Koblenz



Inspection Certificate (EN 10204/3.1.B)

Page 2 from 2

Certificate No. : 879190

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

Material : 1021988
Cust. part no. :
Mat. Design. : Plate
Alloy :
Temper :
Drawing number :
Quantity : 3

Purchase Order No. : 1843/M49106732/TW METALS

Order number : 75131

Order item : 1

Lot No. : 1

Dimensions : 15,875x2,438,400x7,315,200 mm

Master standard : ASTM B 209 2002a

AMS-QQ-A-288/6 AUG 1987

TECHNOLOGICAL PROPERTIES

Mechanical properties

Temper. O

	PI-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	-	26,3	45,1	22,8	-	-

Chemical composition in %, remainder Al

Core Alloy : 5083 Cast No. : 5-04-1909
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.:	0,2650	0,2140	0,0450	0,8360	4,6670	0,1050	0,1010	0,0272	0,0103	0,0387

REVIEWED

Other tests

OCT 29 2004

Dimensional control:

Surface control:

Quality Assurance, 30.08.2004

M. Thon

Reviewed

JUV Süddeutschland Badminton Betrieb GmbH

Notifier Body No. 1000000000 Pressure

Equipment Directive 97/23/EC

Testing Laboratory-

APR 01 2005

AI
Reviewed

OCT 29 2004

REVIEWED

OCT 28 2004

TW METALS

TEST

OCT 07 2004

ACCEPTED BY

PEN a/c

Valid Qualitymanagement System Approvals see: www.corusgroup-koblenz.com
WT-QS 199A COR 11.00 SAP

49107482 11/8/04 cu

9-460-2

J. Zarodkova Snc
347045 Delays Kalitva
Rostov Region Russia

OAO «Delays Kalitva Metallurgical Plant»

INSPECTION CERTIFICATE

EN 10204-3.1B

Mt 6664
Date 26.08.04

CUSTOMER

"Ruud Trade Limited"
Geneva Place, 2nd Floor #313
Waterfront Drive, P.O. Box 3339, Road
Town Tortola, British Virgin Islands.

CONTRACT № 643/54044/46/01062

APPENDIX № 12079

ORDER №

Description of Goods Aluminum Plates

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

Alloy and Temper 5083 O

ASME SB-209

Lot № 12193 (1-4)

Dimension 1,000*60,000*144,000

Net Weight 1580 kg Ql. of packages pas

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

MA02092-PO313-05M99167482

Marking t-650°

AI

Reviewed

NOV 10 2004

CHEMICAL COMPOSITION, %

	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Impurities	
										Barb	Total
Max	0.40	0.40	0.10	1.0	4.9	0.25		0.25	0.15		
Test results	0.18	0.27	0.038	0.68	4.57	0.084		0.04	0.043		
Cast №	13-138										

Quality Control Inspector

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

TW METALS

Doc № OIT-030/01

Reviewed

TÜV SÜDDEUTSCHLAND Bau und Betrieb GmbH
Notulen 11/08/2004 15:38

Equipment Directive 97/23/EC

-Testing Laboratory-

APR 01 2005

REVIEWED

NOV 10 2004

TEST REPORTS
NOV 08 2004
ACCEPTED BY

Alcoa Inc.

PITTSBURGH, PA DAVENPORT WISCONSIN
Ship From RIVERDALE, IA.

We hereby certify that the material covered by this certificate has been inspected seen, 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 Development Worlitz

Kenton P. Young
Quality Assurance Manager

7540 REINHOLD DRIVE
CINCINNATI, OH 45237

Item Description

11 *** W/E 04-10-23 ***
40 % QOR 0101480 REV 08 CUST REQ 04-10-
TOLERANCES F ANSIH35.2 REV 2003 QUAN TOL +/-
EXCEPT MARKING ASTM B209 REV 04 &
250/6 & EXCEPT MARKING AMS-QQ-A-
SSB-209 REV A99 & EXCEPT MARKING AMS-QQ-A-
O STORAGE TANK & CRYOGENIC PLATE MILL FINISH, SAWED. PER
11000 IN TK X 96000 IN W X 288000 IN LN (A) A/T 5083-

2492096
10/10/11
26h2
20:00

Num	Package	Ticket	Lot	Weight	Quantity	UOM	Pc Id/Ser1
1	223041		661993	5337	2	PC	
2	223053		661993	5307	2	PC	
3	223076		661993	2658	1	PC	
				1330	5		

Notes for CQR: 0101480.8

Temp	Dir	UTS	TYS	ELAD
0	Longitudinal	KSI	KSI	PCT
		Max	29.0	
		Min	18.0	16

Chemical Composition									
	SI	FE	CU	MN	NG	CR	ZN	TI	Total Aluminum
Max	.40	.40	.10	1.0	4.9	.25	.25	.15	.15
Min	.40	.40	.10	.40	4.0	.05			REMAIN

Temp	Dir	No. Test	UTS		TVS		BLAD	
			KSI	Max	KSI	PCT	KSI	PCT
0	Longitudinal	8	47.1	Max	27.5	26.3		
			46.7	Min	26.6	19.5		

Fluß Süddeutschen Saal und Betrieb GmbH

Volume 10 Pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

AI
Reviewed
On 11/1/2004

11

NOV 10 2004

PEOPK

REPORTS

TEST

ACCEPTED BY

2002.7.2.130

TW METALS

[Signature]

CERTIFIED INSPECTION REPORT

Alcoa inc.

PITTSBURGH, PA DAVENPORT WORKS
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 herein, 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

292305
Ship Date
2004-10-20
B.L. No.
62091
P.O. No./Govt Contract No.
M 49110679

Invoice No.
66823
Alcoa No. Item
DS-79148-1

Customer
TW METALS-CINCINN

9-4618

Lot: 561993 - Mechanical, Physical, Metallography, Quantometer Results (cont.)
Cast Number H258208B
Chemical SI FE CU MN MG CR ZN TI
Actuals .08 .15 .07 0.67 4.8 .08 .01 .02

Reviewed

TUV SUDDEUTSCHLAND Bau und Betrieb GmbH

Notified by TUV SUDDEUTSCHLAND to Pressure

Equipment Directive 97/23/EC

Testing Laboratory

APR 01 2005

P. J. E.

REVIEWED

NOV 10 2004

TW METALS	REPORT
TEST	OCT 22 2004
ACCEPTED BY	<i>BW</i>

Corus Aluminium Walzprodukte GmbH
Carl-Spaeter-Str. 10
56070 Koblenz

5-448-C



Inspection Certificate (EN 10204/3.1.B)

Certificate No. : 879191

Page 2 from 2

Purchaser : CORUS ALUMINIUM ROLLED PRODUCTS USA- A DIVISION
475 N.MARTINGALE RD/3.400
SCHAUMBURG, IL 60173

Material : 1021967
Cust. part no. :
Mat. Design. :
Alloy :
Temper :
Drawing number :
Quantity : 2

Purchase Order No. : 1844/M49108733/TW METALS
Order number : 75132
Order item :
Lot No. :
Dimensions : 25.400x2.438.400x7.315.200 mm
1.000x98.000x225.000 "

Master standard :
: AMS-QQ-A-250/5 AUG 1997

PO2491705
Re
11/11/04

TECHNOLOGICAL PROPERTIES

Mechanical properties

Temper: O

	Pl-No.	Spec. No.	Rp1,0	Rp0,2 ksi	Rm ksi	AZ" %	Z	Rp/Rm
L Min:	-	-	-	18,0	40,0	16,0	-	-
Max:	-	-	-	29,0	51,0	-	-	-
Act.:	-	1	-	25,1	43,5	24,0	-	-
Act.:	-	2	-	24,4	44,4	24,9	-	-

Chemical composition in %, remainder Al

Core Alloy : 5083 Cast No. : 5-04-1999
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.:	0,2650	0,2140	0,0450	0,6360	4,6670	0,1050	0,1010	0,0272	0,0103	0,0387

Other tests

Dimensional control:

Surface control:

Quality Assurance, 30.09.2004

REVIEWED

OCT 29 2004

ok

AI
Reviewed
OCT 29 2004

M. Thon

Reviewed

TÜV SÜddeutschland Bau und Betrieb GmbH

Normal

to Pressure

Equipment Directive 97/23/EC

-Testing Laboratory

APR 01 2005

TW METALS
TEST REPORTS
OCT 07 2004
ACCEPTED BY
Jm

PEP ok