

CHAPTER 7

SPECIFIC EQUIPMENTS

- 7.4: INNER TANK SAFETY DEVICES

7.4.1: Pression/Depression Safety valve
ANDERSON GREENWOOD 9390C06ALTA

Items Z 62036 and Z 62037

CUSTOMER: TYCO VALVES CONTROLS		ANDERSON, GREENWOOD & CO.		AGCO S/N: U928970000.002
CUST. P/N: F053038862		FUNCTIONAL TEST REPORT		DATE: 7-19-05
CUST. WITNESS:		PILOT OPERATED VALVES (1)		VALVE TYPE: 9390C06ACTA
DATE WITNESSED:				GAUGE NO.: MS-01 MS-09

SERIAL NO.	TAGNO.	PILOT						MAIN VALVE			FINAL ASSEMBLY				
		NAMEPLATE SET	CRACKING PRESSURE	ACTUAL SET (2) (3)	SPECIFIED RESEAT	ACTUAL RESEAT (2) (3)	SEAT SEALING PRESSURE	DOMESTIC PRESSURE @ ACTUAL SET	ASSY & TEST (5)	INLET HYDRO (6)	ASSY (5)	LEAK TEST (4)(7)	BP TEST (7)	VACUUM SET (WEIGHT LOADED)	TEST (5)
1) 05-22750	783-02 242036	2.90	2.78	2.95	2.68	2.70	—	.30	A.M.	NA	NA	.87	NA	1"	NA
2) 05-22751	783-02 242037	2.90	2.78	2.95	2.68	2.70	—	.30	A.M.	NA	NA	.87	NA	1"	NA
3) 05-22752	783-102 271035	2.90	2.78	2.95	2.68	2.70	—	.30	A.M.	NA	NA	.87	NA	1"	NA
4) 05-22753	783-102 271037	2.90	2.78	2.95	2.68	2.70	—	.30	A.M.	NA	NA	.87	NA	1"	NA
5)															
6)															
7)															

TRACEABILITY REQUIREMENTS - HEAT/CODE NUMBERS FOR TRACEABLE COMPONENTS

BODY	CAP	INLET FLG.	OUT. FLG.	NOZZLE	P. BODY	X-RAY NO.	X-RAY NO.
1) 610 F	418591	574412		04146-C	C059		
2) 631 F	574412	574412		04146-C	C059		
3) 610 F	418591	574412		04146-C	C059		
4) 631 F	574412	574412		04146-C	C059		
5)							
6)							
7)							

INSPECTED BY

(1) REFER TO FUNCTIONAL TEST DOCUMENT FOR PROCEDURE AND TOLERANCES. (2) SET OR RESEAT PRESSURE IS WHERE DOME PRESSURE DECREASES OR INCREASES TO CAUSE MAIN VALVE TO OPEN OR CLOSE. (3) COLD DIFFERENTIAL SET FOR STEAM VALVES SET ON AIR. (4) CHECKED AT 30% AND 90% OF SET. (5) INITIAL OF TECHNICIAN PERFORMING OPERATION. (6) ASME, CUSTOMER (CUST) OR N/A (SEE FORM 404 FOR TEST REPORT). (7) SPECIFY TEST PRESSURE.		UNITS OF MEASURE				TEST MEDIUM			
		UNITS	PRES.	VAC.	ITEM	AIR	H2O	STEAM	
	PSIG	✓		PILOT					
	"WC			MAIN VLV	✓				

JUL 20 2005

Inspected by: *Mahla*

**CAST ALUMINUM CORPORATION**

ENGINEERED CASTINGS

687 WHITNEY STREET • SAN LEANDRO, CA 94577
(510) 562-5711 • FAX (510) 562-7688**HEAT CERTIFICATION**

CUSTOMER: Anderson Greenwood

Purchase Order No.: Z15096

Quantity: 10

Part No.: 08-0220-002

Description: 6x8 Body

Material: A 356

Specifications: T 6

Serial No.: 610 F

Annealed _____

Stress Relieved _____

Time at Heat: _____

Tempering Temp: _____

Quench H2O: 150°FSolution: 8 HRS @ 1000°FAge: 2 1/2 HRS @ 310°FHardness Test: 72-77 T3HNLog: 12/13/04

We certify that temperature and test results were obtained with standard approved methods and that heat treatment described above is true and correct.

Signed: Bill FlanneryDate: 12/23/04

STORK®
 Materials Technology

Stork Materials Testing & Inspection
Material Testing and Non-Destructive Testing

Contact: Billy Menicou
 Castco Cast Aluminum Corp.
 Castco Cast Aluminum Corp.
 667 Whitney Street

San Leandro, CA 94577

15062 Bolsa Chica
 Huntington Beach, CA 92649
 USA

Telephone : (714) 892-1961
 Telefax : (714) 892-8159
 Website : www.storkamtl.com

Date: 12/22/2004 P.O. No.: 2425 W/O No.: CA6070-12-21-53492-1

TEST CERTIFICATE

P/N	06-0220-001 (610F)
Customer Name:	Anderson Greenwood

FULL TENSILE					
Specification:	ASME SB-26-01, 356-T6				
Test Method:	ASTM B 557-02a				
Sample No.	Diameter	Area	Yield Strength At 0.2% Offset (psi)	Ultimate Tensile Strength (psi)	% Elongation in 2" (4D)
1	.499	.1936	30,600	40,000	7.5
Requirements:			20,000 Min.	30,000 Min.	3% Min.

Note: Test results determined from cast specimen

ASME SB 26-01 356				
Element		Result %	Min %	Max %
Si	=	6.61	6.50	7.50
Fe	=	0.11	0.00	0.60
Cu	<	0.01	0.00	0.25
Mn	<	0.01	0.00	0.35
Mg	=	0.24	0.20	0.45
Zn	<	0.01	0.00	0.35
Ti	=	0.14	0.00	0.25
OE	<	0.05	0.00	0.05
OT	<	0.15	0.00	0.15
Al	=	Balance	Balance	Balance

Chemical Analysis Performed by Optical Emission per SOP 2.02, Revision 1

INSPECTED BY
MATERIAL CONFORMS TO SPECIFICATION

DEC 20 2004

EN 10204 3.1 B



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 MATERIALS TESTING
 FORTHEIN TESTING



CHEMICAL
 ANALYSIS
 FORTHEIN TESTING

Respectfully submitted

[Signature]
 Lynn Ho
 Senior Quality Administrator

The information contained in this certification represents only the material submitted and is certified only for the quantities tested. Reproduction except in full is reserved pending written approval. All testing was performed in a mercury-free environment. A2LA accreditation No. 0093-01 and 0093-02.
 Stork Materials Testing and Inspection is an operating unit of Stork Materials Technology B.V., Amsterdam, The Netherlands, which is a member of the Stork group

CASTCO**CAST ALUMINUM CORPORATION**

ENGINEERED CASTINGS

607 WHITNEY STREET • SAN LEANDRO, CA 94577

(510) 562-5711 • FAX (510) 562-7688

HEAT CERTIFICATION**CUSTOMER:** Anderson Greenwood**Purchase Order No.:** Z18628**Quantity:** 10**Part No.:** 08-0220-001**Description:** 6x8 Body**Material:** A 356**Specifications:** T 6**Serial No.:** 631 F**Annealed** _____**Stress Relieved** _____**Time at Heat:** _____**Tempering Temp:** _____**Quench H2O:** 150°F**Solution:** 8 HRS @ 1000°F**Age:** 2 1/4 HRS @ 310°F**Hardness Test:** 72-78 BHN**Log:** 3/1/05

We certify that temperature and test results were obtained with standard approved methods and that heat treatment described above is true and correct.

Signed: Bobby Shurtz**Date:** 3/7/05**INSPECTED BY**

MAR 11 2005

G. L. Miller

STORK
Materials Technology

Stork Materials Testing & Inspection

Material Testing and Non-Destructive Testing

Contact: Billy Mericou
Castco Cast Aluminum Corp.
Castco Cast Aluminum Corp.
667 Whitney Street

San Leandro, CA 94577

15062 Bolsa Chica
Huntington Beach, CA 92649
USA

Telephone : (714) 892-1981
Telefax : (714) 892-8159
Website : www.storksmti.com

Date: 3/7/2005

P.O. No.: 2648

W/O No.:

CAS070-03-03-69879-2

TEST CERTIFICATE

Part No.: 06-0220-001 (631F)

ASME SB 26-01 356				
Element		Result %	Min %	Max %
Si	=	6.58	6.50	7.50
Fe	=	0.14	0.00	0.60
Cu	=	0.02	0.00	0.25
Mn	=	0.01	0.00	0.35
Mg	=	0.24	0.20	0.45
Zn	=	0.01	0.00	0.35
Ti	=	0.14	0.00	0.25
OE	<	0.05	0.00	0.05
OT	<	0.15	0.00	0.15
Al	=	Balance	Balance	Balance

Chemical Analysis Performed by Optical Emission per SOP 2.02, Revision 1

FULL TENSILE					
Specification:		ASME SB 26 (01) 356-T8			
Test Method:		ASTM B 557-02a			
Sample No.	Diameter	Area	Yield Strength At 0.2% Offset (psi)	Ultimate Tensile Strength (psi)	% Elongation In 2" (4D)
2	.1995	.1960	23,700	33,500	5.5
Requirements:			20,000 MIN	30,000 MIN	3% MIN

Note: Test results determined from cast specimen

MATERIAL CONFORMS TO SPECIFICATION

INSPECTED BY

MAR 11 2005

Respectfully submitted

Kelly Nguyen
Kelly Nguyen
Senior Quality Administrator



NET AND
MATERIALS TESTING
FASTENER TESTING



CHEMICAL
MECHANICAL
FASTENERS

The information contained in this certification represents only the material submitted and is certified only for the quantities tested. Reproduction except in full is reserved pending written approval. All testing was performed in a mercury-free environment. A2LA accreditation No. 0083-01 and 0083-02. Stork Materials Testing and Inspection is an operating unit of Stork materials Technology B.V., Amsterdam, The Netherlands, which is a member of the Stork group

It is likely really that the material covered by the Conference has been inspected right, and has been found to want. The persons having a part in the description and final inspection by independent properties about on the face of this sheet.

Mark J. Vitell
 Director of Marketing Development
 University of Mississippi

Item Description

Item Description	1900 IN TK X 68,000 IN W X 144,000 IN LN CAT D 126849 (N) A/T 6061-
	PER AMS-00-A-

209 REV A99 DIMENSIONAL TOLERANCES
F ANS13E5.1 REV 2003 ((MARKED))
INTERLEAVED SKID DOT: 4500 LB. QUAN TOL +/-10
% CQR DL26849 REV 26 CUST REQ 04-08-
08 ~~etc~~ W/E 04-08-14 ~~etc~~

weight	4071	1646	5717
--------	------	------	------

Question	Answer
11	
13	
44	

26
26

12

Notes for COB: D176849.26

Type T4	Dir Long	Transv.	VTS		EVAL	
			MSI	PCT	MSI	PCT
Type T62	Dir Long	Transv.	Max		16.0	16
			Min		38.0	10

Max	Min
Alloy 6061	

[illegible]

BAUG 16 2104

Nov 1 - 2004

1002-1-2012

800 790 2076

283449
Slute Date
2004-08-12
E.G. Rio Govt Computer N
C95064

Ship From:

283449	223023
<u>Ship Date</u>	<u>B.L. No.</u>
2004-08-12	57322

C&B-ELIANT IND

Page I

AGCO/Crosby
Part No.

03-0665-008

CERTIFICATION

WILLIS T. LEE'S

DATE: 9-24-54

CUSTOMER P.O.: 388

CUSTOMER PN:

ATTN: BA

QUANTITY: 405

BY: BMC66thru
TINACEN COPPER & BRASS SALES INC.

IFIED INSPECTION REPORT

Alcoa Inc.

PITTSBURGH, PA DAVENPORT WORKS

Ship From:

Page 2

I 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 appearing as part of our description and that samples representative of the material and the composition have been tested for mechanical properties in accordance with the test of this document.

Victor P. J. [Signature]

Kristen P. Yocum
Quality Assurance Manager

Mark J. Vialico
Director of Manufacturing Davenport Works

283449
Ship Date
2004-08-12
P.O. No./Govt Contract No.
C95064

223025
B.L. No.
57323
Invoice No.
54651
Alcoa No. Item
DS-80410-1

Customer

CEB-EZGUART IND

Lot: 574412 -Mechanical, Physical, Metallurgy, Quantometer Results

Temp Dir	Long Transv.	Test	No.	UTS	KSI	FCT	TTS	ELAD
		Max	39	27.9	22.4			
		Min	38.7	27.6	19.6			
Temp Dir	Long Transv.	Test	No.	UTS	KSI	FCT	TTS	ELAD
		Max	48.1	42.7	15.5			
		Min	47.6	42.2	13.6			
Cast Number	Chemical	SI	FE	CU	Mn	NG	CR	Zn
645R812	Actuals		.57	.5	.27	.03	1.0	.20
							.00	.03

INTEGRIS METALS

7111 WALL ST.

CLEVELAND, OHIO 44125

Customer: *Integris Metals*

Your Order No. *11925*

Our Invoice No. *102557392*

INSPECTED BY
NOV 1 2004
[Signature]

AUG 16 2004

AN REPORT

Alcoa Inc.

PITTSBURGH, PA DAVENPORT WORKS

Covered by this certificate has been inspected with, and has been found to meet, the
and therein, including any specifications forming a part of the description and that stamped
and the composition limits and that the mechanical properties shown on the face of this sheet.

265238 110006
Ship Date B.L. No.
2004-04-20 50244
P.O. No./Govt Contract No. Customer
C78201 CEB-ELKHART IND

Ship From: RIVERDALE, IA.

Page

Invoice No. 35695
Alcoa No. Item DS-77265-1

Kenton P. Young

Kenton P. Young
Quality Assurance Manager

Director of Manufacturing Davenport Works

Lot: 418591 - Mechanical, Physical, Metallurgical, Metallography, Quantometer Results (cont.)

Temp Dir	No.	UTS	TYS	EL4D
T62 Long Transv.	9	Max 47.9	KSI 43.3	PCT 15.2
		Min 47.8	KSI 42.8	PCT 12.1
Cast Number	Chemical	SI	FE	CU
536R056	Actuals	.68	.5	.27
			.01	0.9
			.20	.00
				.02

INTEGRIS METALS

7111 WALL ST.

CLEVELAND OHIO 44125

Customer *Integris Metals*

Your Order No. *11925*

Our invoice no. *102-537590*

CERTIFIED INSPECTION REPORT

Alcoa Inc.

PITTSBURGH, PA DAVENPORT WORKS

We hereby certify that this material covered by the 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 had the mechanical properties shown on the face of this sheet.

Mark J. Vreblec
Director of Manufacturing Davenport Works

Kenton P. Young
Kenton P. Young
Quality Assurance Manager

265238 Ship Date 110006
2004-04-20 B.L. No. 50244
P.O. No./Govt Contract No. Customer
C78201 C&B-ELKHART IND

Alcoa No. Item

DS-77265-1

Invoice No.

35695

Ship From: RIVERDALE, IA.

Page

Ship To: COPPER AND BRASS SALES INC
58144 CHARLOTTE AVENUE
ELKHART, IN 46517

Item Description

.1900 IN TK X 48.000 IN W X 144.000 IN LN CAT D 126849 (N) A/T 6061-T4 FLAT SHEET MILL, FINISH ((P/N 063241-4)) PER AMS-QQ-A-250/11 & EXCEPT MARKING AMS4026 REV K & EXCEPT MARKING ASTM B209 REV 02A & EXCEPT MARKING ASME-SB-209 REV A99 DIMENSIONAL TOLERANCES F ANS I H35.2 REV 2003 ((MARKED)) INTERLEAVED SKID WGT: 4500 LB QUAN TOL +/-10 & CQR D126849 REV 25 CUST REQ 04-04-17 *** W/E 04-04-24 ***

INSPECTED BY
JUN 30 2005
chuck Affleck

Num	Package Ticket	Lot	Weight	Quantity	UOM	Pc Id/Serl
1	742593	418591	3909	31	PC	

Notes for CQR: D126849.25

PRODUCT PRODUCED AND MARKED TO THE REQUIREMENTS OF AMS-QQ-A-250/11 ALSO MEETS THE REQUIREMENTS OF QQ-A-250/11F. PRODUCT PRODUCED AND MARKED TO THE REQUIREMENTS OF QQ-A-250/11F ALSO MEETS THE REQUIREMENTS OF AMS-QQ-A-250/11.

CQR: D126849.25 -Specification Limits

Temp	Dir			UTS	TYS	EL4D
T4	Long Transv.	Max	Min	KSI	KSI	PCT
				30.0	16.0	16
T62	Long Transv.	Max	Min	KSI	KSI	PCT
				42.0	35.0	10
Chemical Composition						
		Max		SI	FE	CU
		Min		.8	.7	.40
Alloy 6061				.40	.15	.15

Lot: 418591 -Mechanical, Physical, Metallography, Quantometer Results

Temp Dir	Long Transv.	9	Max	Min	UTS KSI	TYS KSI	EL4D PCT
T4	Long Transv.	9	Max	Min	37.7	27.5	22.1
			Max	Min	37.2	27.2	20.5

AGCO Crosby
Part No.
03.0665.008

CERTIFICATION
SOLD TO: *Integrals Metals*
DATE: *9-24-04*
CUSTOMER P.O.: *388405*
CUSTOMER P.N.:
ATTN: *CSA*
QUANTITY: *80cs*
BY: *Blair G. Hethcote*
THYSSEN COPPER & BRASS SALES INC.

APR 22 2004



**LABORATORY REPORT OF
CHEMICAL ANALYSIS AND
MECHANICAL TESTS**

P.O. BOX 210 • 3320 PARKWAY DRIVE • TEMPLE, TEXAS 76503-0210
(254) 773-9088 • (800) 999-9088 • FAX (254) 773-1133

Customer: **ANDERSON GREENWOOD CROSBY**

Description: CF8M ss RT & RB per ASTM A351-00 2 OF 2 PCS. 8.60 x 5.96 x .36 P/N# 05.0091.263	AGCO/Crosby Part No.		Date: 02-04-05	CCI No. 64756
			Customer Order No:	
			Z18632	ITEM #1

CHEMICAL ANALYSIS

Heat No	C	Mn	Si	P	S	Ni	Cr	Mo	Cu	Fe				BHN
D-4146-C	.03	1.08	.73	.030	.018	9.4	19.0	2.0						BAL

MECHANICAL TESTS

Heat No	Tensile Strength (PSI)	Yld Strength (PSI)	Elong % in 2	RA %
D-4146	77,600	39,500	56%	

We hereby certify that the foregoing data is a true copy of the data resulting from tests performed in our laboratory or of the data furnished us by the laboratory performing the tests.

CENTRIFUGAL CASTINGS, INC.

INSPECTED BY

MAR 07 2005

[Signature]

By *[Signature]*
Authorized Agent

Aluminum Shapes

ALUMINUM SHAPES COMPANY
9430 Mayfield • P.O. Box 20007 • Oak Brook, IL 60110

Phone (838) 682-6500 Fax (838) 682-6500

Sold To:

033030

CASTLE, A.H. & CO

3480 N GOLF RD

FRANKLIN PARK IL 60131-1394

UNITED STATES

Ship To:

033030

CASTLE, A.H. & CO-IL

3480 N GOLF RD

FRANKLIN PARK IL 60131-1394

UNITED STATES

CERTIFIED INSPECTION REPORT AND TEST RESULTS

Certification Date:

07/22/2004

Customer Purchase Order No.:	01 79145	Customer Part Number:	42169 SPEC-A06041-31	Packing Slip No.:	672506
Aluminum Shapes Lot No.:	111123	Die Number:	32066	Specifications:	6061-T6
Aluminum Shapes Part No.:	AS057287	Number Of Tests:	1	ASME 3221	6061-T6 Temper
Part Description:	2.75 X 12' SQUARE BAR				
Comments:					

Chemical Composition In Percent Maximum Unless Specified As Rmble

Cast	Alloy	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Clinfench	Other	Al
701563	6061-T6	0.70	0.35	0.32	0.13	0.59	0.17	0.05	0.02	0.05	0.15	

Mechanical Properties

Tensile		Yield		Elongation % in 2" or 4D		Hardness	
Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
47.8	67.0	42.0	62.0	17.0	17.0	17.0	17.0

We hereby certify that the material covered by this report has been inspected and found to conform with the requirements of the specification and that the material has been tested and found to conform with the requirements of the specification. We warrant that the material was tested and found to conform with the requirements of the specification and that the material has been tested and found to conform with the requirements of the specification. We warrant that the material was tested and found to conform with the requirements of the specification and that the material has been tested and found to conform with the requirements of the specification.

Order reference no. 05-00287-020

DATE REC'D 11/4/23/HC 0059

INSPECTION REPORT

FORM 004-1001 ISSUE 001/001
Document printed on

CASTLE METALS INC.

DATE REC'D 11/4/23/HC 0059

APPROVED BY

TRIP-Bockaria
Quality Director