



NATIONAL CERTIFIED TESTING LABORATORIES

FIVE LEIGH DRIVE • YORK, PENNSYLVANIA 17406 • TELEPHONE (717) 846-1200
FAX (717) 767-4100
www.nctlinc.com

ALL SEASONS DOOR & WINDOW
AAMA/WDMA/CSA 101/ I.S.2/ A440-05
TEST SUMMARY REPORT

Report No: NCTL-110-10694-1S
Expiration Date: 05/31/11
Revision Date: 10/16/09

Test Specimen

Manufacturer: All Seasons Door & Window
Product Type: Horizontal Sliding Aluminum Prime Window
Series/Model: Series "A500"
Primary Product Designation: HS-AW55 2500 x 2000 (99x79)
Optional Product Designation: Not Applicable
Test Completion Date: 05/21/07

Reference should be made to Structural Performance Test Report Number NCTL-110-10694-1 for complete specimen description and test data.

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JUSTIN L. BUPP
Technician



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STRUCTURAL PERFORMANCE TEST REPORT

Report No: NCTL-110-10694-1
Test Date: 05/21/07
Report Date: 06/06/07
Expiration Date: 05/31/11
Revision Date: 10/16/09

Client: All Seasons Door & Window
28 Edgeboro Road
East Brunswick, NJ 08816

Test Specimen: All Seasons Door & Window's Series "A500" Type XX Horizontal Sliding Aluminum Prime Window (HS-AW55 2500 x 2000 (99 x 79)).

Test Specification: AAMA/WDMA/CSA 101/I.S.2/A440-05, "Standard/Specification for Windows, Doors and Unit Sky Lights."

TEST SPECIMEN DESCRIPTION

General: The test specimen was a type XX horizontal sliding aluminum prime window measuring 2500 mm (99") wide by 2000 mm (79") high overall. Both panels measured 1255 mm (49-3/8") wide by 1895 mm (74-5/8") high. The frame and panels were thermally broken using poured urethane thermal barriers, debridged to 4.8 mm (3/16") with a dual thermal barrier at the sill, debridged to 4.8 mm (3/16"). One (1) metal spring-loaded claw-type lock was located at each of the jamb stiles. The metal keepers were extruded onto the jambs. A rigid parting vinyl was located at the head and sill. One (1) steel roller guide was located in each sill track. A rigid vinyl panel guide was slide-fitted at the rails. A nylon roller/ plastic housing was located at each end of the bottom rails. The frame and head/ jambs panels were of double screw butt-type corner construction. The frame sill/ jamb was of quadruple screw butt-type corner construction.

Glazing: Both panels were interior glazed using sealed insulating glass with a foam tape back-bedding, an interior glazing gasket and a snap-in extruded aluminum glazing bead. The overall insulating glass thickness was 25 mm (1") consisting of two (2) lites of 5 mm (3/16" thick) annealed glass and one (1) space created by a desiccant-filled aluminum spacer system (A1-D).

Weatherseals: One (1) strip of center fin weatherstrip (0.200" high) was located at the rails, jamb stiles and exterior meeting rail. One (1) strip of polypile weatherstrip (5.1 mm (0.200") high) was located at the interior meeting stile. One (1) strip of center fin weatherstrip (3.8 mm (0.150" high) was located at the jamb stiles. One (1) strip of closed cell foam was located at the jambs. A polypile adhesive backed pad (11.4 mm (0.450") high) measuring 38 mm (1-1/2") was located at each end of the stiles' interior and exterior faces.

Weeps: One (1) weep hole measuring 29 mm x 4.8 mm (1-1/8" x 3/16") was located at 70 mm (2-3/4") from each end of the exterior sill face. One (1) weep hole measuring 25 mm x 4.8 mm (1" x 3/16") was located at 70 mm (2-3/4") from each end of the exterior sill leg. One (1) weep hole measuring 29 mm x 4.8 mm (1-1/8" x 3/16") was located at midspan of the exterior sill face. One (1) weep hole measuring 25 mm x 4.8 mm (1" x 3/16") was located at midspan of the center sill leg. One (1) weep hole measuring 7.9 mm (5/16") in diameter was evenly spaced 305 mm (12") apart on the exterior sill face. One (1) weep hole measuring 6.4 mm (1/4") in diameter was evenly spaced 405 mm (16") apart in the screen retainer track.

Interior & Exterior Surface Finish: Clear anodized aluminum.

Sealant: The frame and panel corners were sealed with a silicone sealant. The exterior glazing perimeter was sealed with a silicone sealant.

Insect Screen: No screen employed.

Installation: See attached illustration.

TEST RESULTS

<u>Par. No.</u>	<u>Title of Test & Method</u>	<u>Measured</u>	<u>Allowed</u>
5.3.1.1	Operating Force - ASTM E2068 – Prior to cycling		
	Interior Panel Initiate Open	102 N (23 lbf)	-----
	Maintain Open	93 N (21 lbf)	115 N (25 lbf)
	Initiate Close	66 N (15 lbf)	-----
	Maintain Close	53 N (12 lbf)	115 N (25 lbf)
	Exterior Panel Initiate Open	120 N (27 lbf)	-----
	Maintain Open	93 N (21 lbf)	115 N (25 lbf)
	Initiate Close	84 N (19 lbf)	-----
	Maintain Close	106 N (24 lbf)	115 N (25 lbf)
5.3.6.3	Deglazing - ASTM E987		
	Interior Panel		
	Top Rail (230 N/50 lbf)	5.4 % (0.7 mm/ 0.027")	<90%
	Bottom Rail (230 N/50 lbf)	7.2 % (0.9 mm/ 0.036")	<90%
	Jamb Stile (320 N/70 lbf)	2.4 % (0.3 mm/ 0.012")	<90%
	Meeting Stile (320 N/70 lbf)	3.0 % (0.4 mm/ 0.015")	<90%
	Exterior Panel		
	Top Rail (230 N/50 lbf)	3.8 % (0.5 mm/ 0.019")	<90%
	Bottom Rail (230 N/50 lbf)	5.2 % (0.7 mm/ 0.026")	<90%
	Jamb Stile (320 N/70 lbf)	2.6 % (0.3 mm/ 0.013")	<90%
	Meeting Stile (320 N/70 lbf)	3.8 % (0.5 mm/ 0.019")	<90%
5.3.2.	Air Infiltration - ASTM E283 – Prior to cycling		
	300 Pa – (6.2 psf) (50 mph)	1.0 L/ (sec• m ²) (0.2 cfm/ft ²) (0.23 cfm/ft ²) measured	1.5 L/ (sec• m ²) (0.3 cfm/ft ²)
5.3.3	Water Penetration - ASTM E331&547 – Prior to cycling		
	3.4 L/ (min• m ²) 5.0 gph/ft ²		
	WTP= 390 Pa (8.0 psf)	No Leakage	No Leakage
5.3.4.2	** Uniform Load Deflection - ASTM E330		
	1920 Pa (40.0 psf) Exterior	6.8 mm (0.266")	10.6 mm (0.419")
	1920 Pa (40.0 psf) Interior	7.2 mm (0.283")	10.6 mm (0.419")

TEST RESULTS (Continued)

<u>Par. No.</u>	<u>Title of Test & Method</u>	<u>Measured</u>	<u>Allowed</u>
5.3.4.3	** Uniform Load Structural - ASTM E330 2880 Pa (60.0 psf) Exterior 2880 Pa (60.0 psf) Interior	0.1 mm (0.003") <0.1 mm (0.002")	7.4 mm (0.293") 7.4 mm (0.293")
5.3.5	Forced Entry Resistance Test – ASTM F588	Meets As Stated	
5.3.6.9	Life Cycle Test – AAMA 910 1 st Half – Vent / Sash / Panel – 1250 Total Cycles		
2.1.4 ₉₁₀	Vent / Sash / Panel Cycling Testing (First Half) 2.2.3 Vent / Sash / Panel Cycling	Meets as Stated	
2.1.5 ₉₁₀	Locking Hardware Cycle Testing (First Half) 2.3 Locking Hardware Cycling	Meets as Stated	
2.1.7 ₉₁₀	Misuse Testing Horizontal Sliding Window and Sliding Glass Door 2.5.3.1 Sash Corner Block Test 2.5.3.2 Sash Removal Test	Meets as Stated Meets as Stated	
Life Cycle Test 2 nd Half – Vent / Sash / Panel – 1250 Total Cycles			
2.1.8 ₉₁₀	Vent / Sash / Panel Cycling Testing (First Half) 2.2.3 Vent / Sash / Panel Cycling	Meets as Stated	
2.1.9 ₉₁₀	Locking Hardware Cycle Testing (First Half) 2.3 Locking Hardware Cycling	Meets as Stated	
2.1.10 ₉₁₀	Operating Force - ASTM E2068 – After cycling Interior Panel Initiate Open Maintain Open Initiate Close Maintain Close Exterior Panel Initiate Open Maintain Open Initiate Close Maintain Close	120 N (27 lbf) 107 N (24 lbf) 107 N (24 lbf) 102 N (23 lbf) 107 N (24 lbf) 98 N (22 lbf) 102 N (23 lbf) 98 N (22 lbf)	----- 115 N (25 lbf) ----- 115 N (25 lbf) ----- 115 N (25 lbf) ----- 115 N (25 lbf)
2.1.11 ₉₁₀	Air Infiltration - ASTM E283 – After cycling 300 Pa – (6.2 psf) (50 mph)	1.5 L/ (sec • m ²) (0.3 cfm /ft ²) (0.27 cfm /ft ²) measured	1.5 L/ (sec • m ²) (0.3 cfm /ft ²)

TEST RESULTS (Continued)

<u>Par. No.</u>	<u>Title of Test & Method</u>	<u>Measured</u>	<u>Allowed</u>
2.1.12	Water Penetration - ASTM E331 - After Cycling 3.4 L/(min • m ²) 5.0 gph/ft ² WTP= 390 Pa (8.0 psf)	No Leakage	No Leakage
OPTIONAL PERFORMANCE			
5.3.3	Water Penetration - ASTM E331 & 547 - 3.4 L/(min • m ²) 5.0 gph/ft ² WTP= 580 Pa (12.0 psf) Prior to Cycling WTP= 530 Pa (11.0 psf) After Cycling	No Leakage No Leakage	No Leakage No Leakage
5.3.4.2	** Uniform Load Deflection - ASTM E330 2640 Pa (55.0 psf) Exterior 2640 Pa (55.0 psf) Interior	9.5 mm (0.374") 10.1 mm (0.396")	10.6 mm (0.419") 10.6 mm (0.419")
5.3.4.3	** Uniform Load Structural - ASTM E330 3960 Pa (82.5 psf) Exterior 3960 Pa (82.5 psf) Interior	<0.1 mm (0.001") 0.2 mm (0.006")	7.4 mm (0.293") 7.4 mm (0.293")

** No glass breakage or permanent damage causing the unit to be inoperable

TEST COMPLETED 05/21/07


The tested specimen meets (or exceeds) the performance level specified in AAMA/WDMA/CSA 101/I.S.2/A440-05 for air leakage resistance. The listed results were secured by using the designated test methods and indicate compliance with the performance requirements of the referenced specification paragraphs for the HS-AW55 2500 x 2000 (99 x 79) product designation.

Detailed drawings were available for laboratory records and were compared to the test specimen at the time of this report. A list of the component drawings reviewed for product verification is included as an appendix to this report.

A copy of this report along with representative sections of the test specimen will be retained by NCTL for a period of four (4) years. The results obtained apply only to the specimen tested. No conclusions of any kind regarding the adequacy or inadequacy of the glass in the test specimen may be drawn from this test. This report does not constitute certification of the product which may only be granted by a certification program validator.

NATIONAL CERTIFIED TESTING LABORATORIES


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Technician

Robert H. Zeiders 
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Vice-President Engineering & Quality

JLB/amb

APPENDIX A
Forced Entry Resistance Test Results

Test Method: ASTM F588-04, "Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact".

TEST RESULTS

<u>Paragraph No.</u>	<u>Loads</u>	<u>Duration</u>	<u>Measured</u>	<u>Allowed</u>
<i>A2.1 –Disassembly Test</i>	<i>N/A</i>	<i>5 Minutes</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A2.2-Lock Manipulation</i>	<i>N/A</i>	<i>5 Minutes</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A2.3 –Sash Manipulation</i>	<i>N/A</i>	<i>5 Minutes</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A4.2-Test A1</i>	<i>L1=150 lbf</i>	<i>1 Minute</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A2.4.3-Test A2</i>	<i>L1=150 lbf</i> <i>L2= 75 lbf interior</i>	<i>1 Minute</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A2.4.4-Test A3</i>	<i>L1=150 lbf</i> <i>L2= 75 lbf exterior</i>	<i>1 Minute</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A2.4.5-Test A4</i>	<i>L1=150 lbf</i> <i>L2= 75 lbf interior</i>	<i>1 Minute</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A2.4.6-Test A5</i>	<i>L1=150 lbf</i> <i>L2= 75 lbf exterior</i>	<i>1 Minute</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A2.4.8-Test A7</i>	<i>L1=150 lbf</i> <i>L2= 75 lbf interior</i> <i>L3= 25 lbf interior</i>	<i>1 Minute</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A2.2 - Lock Manipulation</i>	<i>N/A</i>	<i>5 Minutes</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A2.3 –Sash Manipulation</i>	<i>N/A</i>	<i>5 Minutes</i>	<i>No Entry</i>	<i>No Entry</i>

APPENDIX B

Estimated Uncertainty of Measurements

As required by Section 5.10.3 of ISO 17025, "General Requirements for the Competence of Testing and Calibration Laboratories", listed below is the estimated expanded uncertainties for the applicable measurements in this report:

<i>Operating Force:</i>	$\pm 0.6 \text{ lb}_f (\pm 2.7 \text{ N})$
<i>Test Pressures:</i>	$\pm 0.2 \text{ psf} (\pm 10 \text{ Pa})$
<i>Air Leakage:</i>	$\pm 0.12/A \text{ cfm/ft}^2 (\pm 0.06/A \text{ L/ (sec} \bullet \text{ m}^2))$ <i>Where A is the area of the test specimen</i>
<i>Deflection Measurements:</i>	$\pm 0.002 \text{ inches} (\pm 0.05 \text{ mm})$
<i>Deglazing Force:</i>	$\pm 0.7 \text{ lb}_f (\pm 3.1 \text{ N})$
<i>Forced Entry Loads:</i>	$\pm 0.7 \text{ lb}_f (\pm 3.1 \text{ N})$

All of the above expanded uncertainties are determined from combined standard uncertainties and a coverage factor $k = 2.00$ based on a normal distribution, and define an interval estimated to have a level of confidence of 95%.

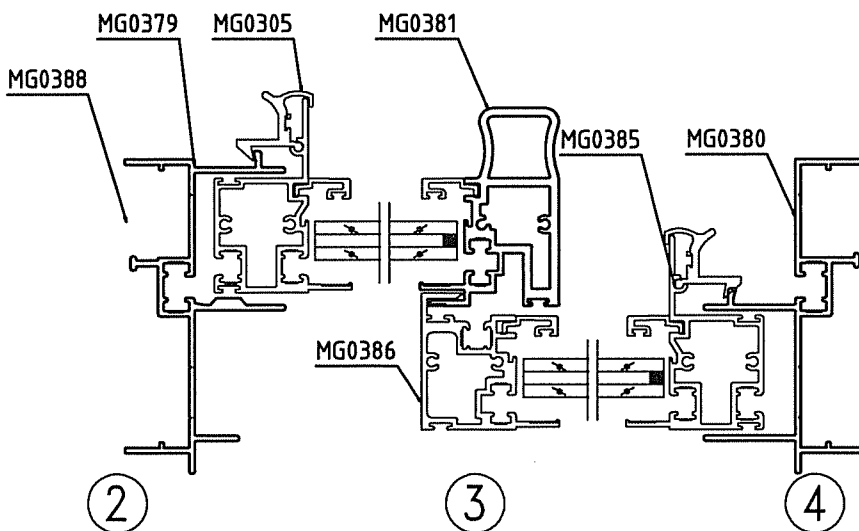
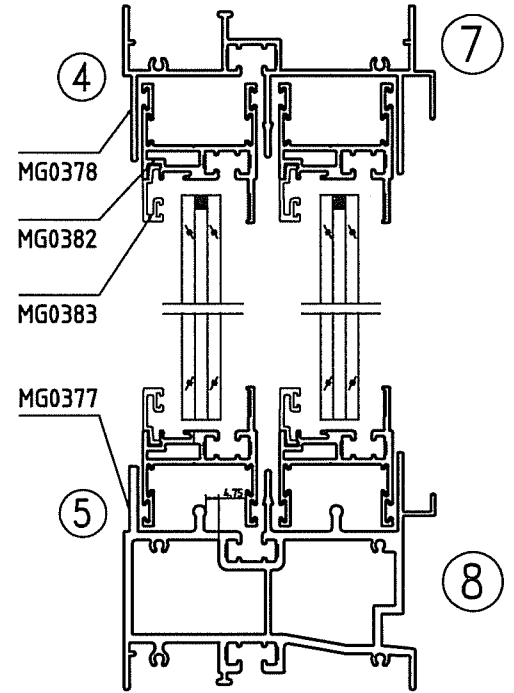
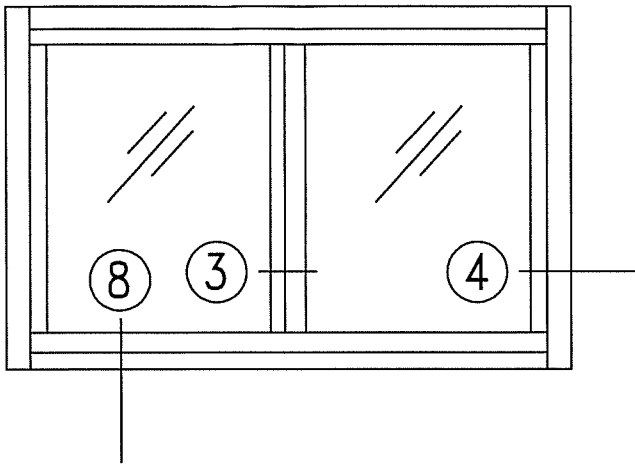
APPENDIX C

List of Component Drawings Reviewed for Product Verification

See Attached Bill of Materials

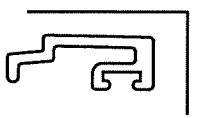
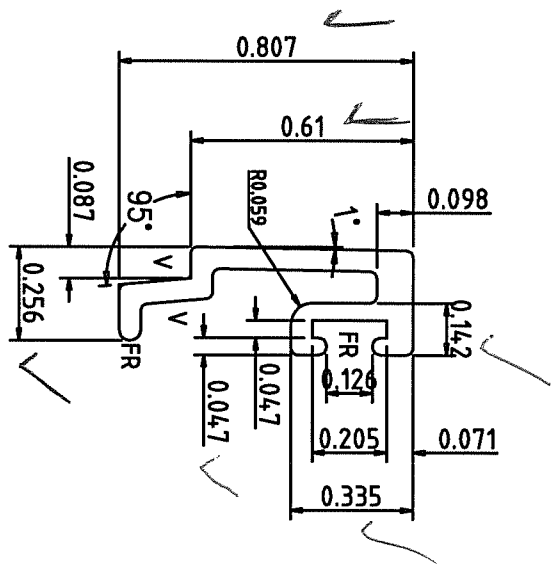
Note: The above referenced component drawings along with representative sections of the test specimen will be retained by NCTL for a period of four (4) years.

7



TEST SPECIMEN COMPLIES
 WITH THESE DETAILS.
 ANY DEVIATION IS NOTED
 REPORT NO. NCTL-110-10994-1
 TEST DATE 5/21/07

TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED
 REPORT NO. NCTL-110-10844-1
 TEST DATE 5/21/07



SCALE 1:1

V=0.012x90°

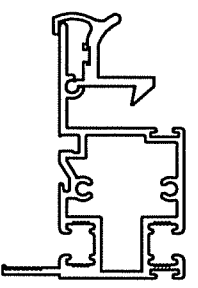
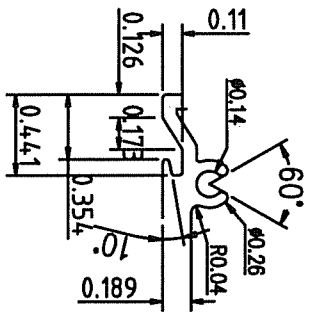
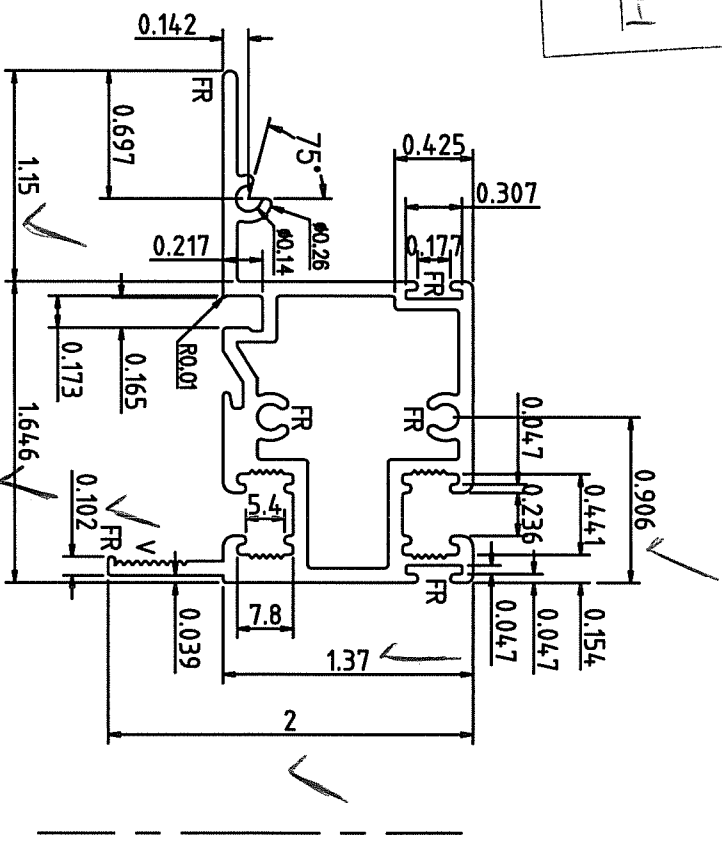
Unspecified tolerance size range	tolerance
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>0.118-0.237	±0.0071
>0.237-0.473	±0.0079
>0.473-0.748	±0.0091
>0.748-0.985	±0.01
>0.985-1.496	±0.012
>1.496-1.969	±0.0142
>1.969-3.937	±0.0242
>3.937-5.906	±0.0339
>5.906-7.874	±0.0441
angle tolerance	±1°

CUSTOMER	DWG	DWG.NO.	MG0383	SEC.NO.	EST. AREA sq. inch	EST. WEIGHT Lb./Foot	PERIMETER inch	SCALE	OUT ROUND inch	UNSP. THICKNESS inch	UNSP. RADIUS inch	STANDARD	ALLOY/TEMPER	DRAWN	TY J	DATE	CHECKED	DATE	APPROVED	DATE
					0.097	0.118	3.268	2:1	0.867	0.06±0.0055	R0.02	6063-T5	6063-T5			11.6.2006				



ZHONG SHAN CITY GOLD SUN ALUMINIUM

TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED. REPORT NO. NCTL-110-10694-1 TEST DATE 5/21/07



SCALE 1:2

V=0.02x90° SCALE 1:1

Injection Area: 0.304in²

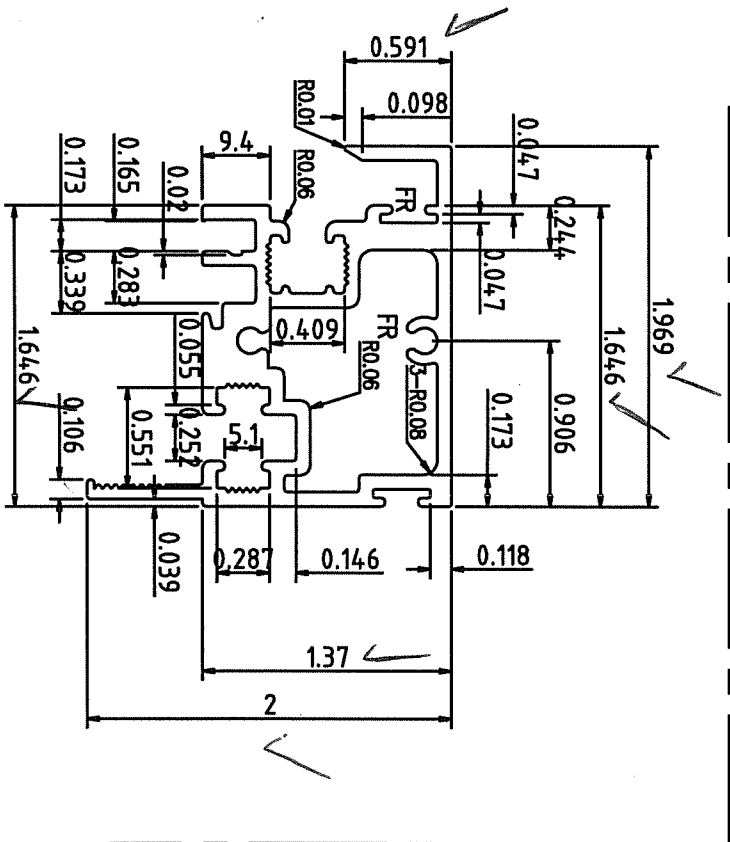
size range	tolerance
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>0.237-0.473	±0.0079
>0.473-0.748	±0.0091
>0.748-0.985	±0.01
>0.985-1.496	±0.012
>1.496-1.969	±0.0142
>1.969-3.937	±0.0242
>3.937-5.906	±0.0339
>5.906-7.874	±0.0441
angle tolerance	±1°

CUSTOMER, DWG	DWG. NO.	MG0385	SEC. NO.	OUT ROUND	3.111	SCALE	1:1	EST. AREA Inch ²	0.838	EST. WEIGHT Lbs/Foot	1.01	PERIMETER Inch	14.686	UNSP. THICKNESS Inch	0.079±0.0055	STANDARD	BB5237-2004	ALLOY/TEMPER	6063-T5	DRAWN	TYJ	DATE	11/6/2006
CUSTOMER, DWG	DWG. NO.	MG0385	SEC. NO.	SCALE	1:1	UNSP. RADIUS	R0.02	ZHONG SHAN CITY GOLD		AUDITING		CHECKED		DATE		APPROVED		DATE					

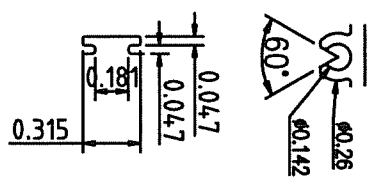


ZHONG SHAN CITY GOLD
SUN ALUMINIUM

TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED REPORT NO. NCTL-110-10841-1 TEST DATE 5/21/07



V=0.02x90° SCALE 1:1



Unspecified tolerance size range	tolerance
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>0.237-0.473	±0.0079
>0.473-0.748	±0.0091
>0.748-0.985	±0.01
>0.985-1.496	±0.012
>1.496-1.969	±0.0142
>1.969-3.937	±0.0242
>3.937-5.906	±0.0339
>5.906-7.874	±0.0441
angle tolerance	±1°

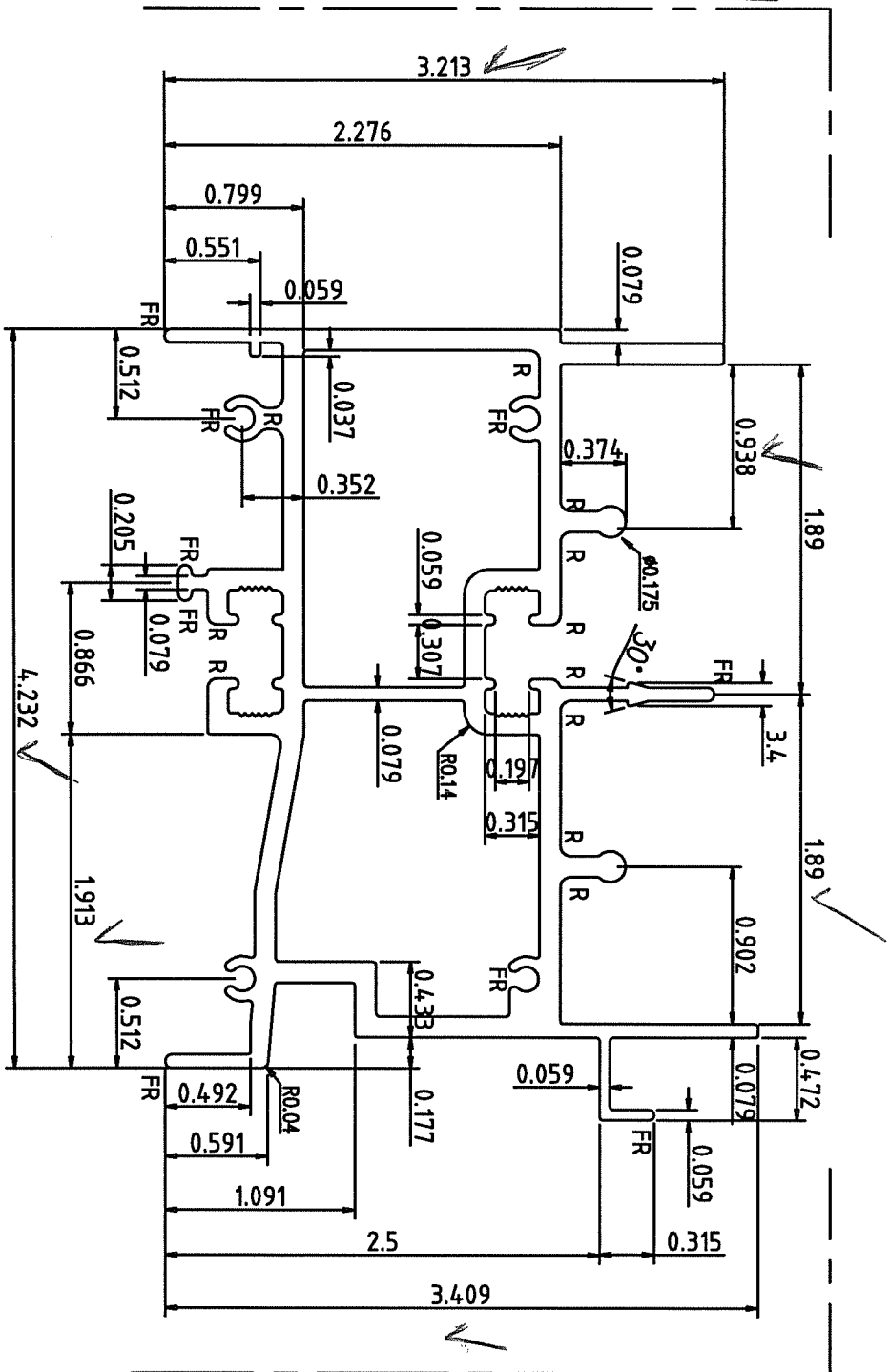
Injection Area: 0.359in²

CUSTOMER: DWG	DWG.NO.	MG0386	SEC.NO.	OUT ROUND	2.796	SCALE	1:1	EST. AREA	0.881	UNSP. THICKNESS	0.079±.0055	STANDARD	GB5237-2004	DRAWN	TYJ	DATE	11.6.2006
				EST. WEIGHT	1.063	UNSP. RADIUS	R0.02	ALLOY/TEMPER	6063-T5	AUDITING		DATE		CHECKED		DATE	
				PERIMETER	14.252					APPROVED		DATE				DATE	



ZHONG SHAN CITY GOLD SUN ALUMINIUM

TEST SPECIMEN COMPLIES
 WITH THESE DETAILS.
 ANY DEVIATION IS NOTED
 REPORT NO. NCTL-110-10894-1
 TEST DATE 5/21/07



R=R0.059 SCALE 2:1

Injection Area: 0.503inch²

Unspecified tolerance

size range	tolerance
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>0.118-0.237	±0.0071
>0.237-0.473	±0.0079
>0.473-0.748	±0.0091
>0.748-0.985	±0.01
>0.985-1.496	±0.012
>1.496-1.969	±0.0142
>1.969-3.937	±0.0242
>3.937-5.906	±0.0339
>5.906-7.874	±0.0441
angle tolerance	±1°

CUSTOMER, DWG	DWG. NO.	MG0377	SEC. NO.
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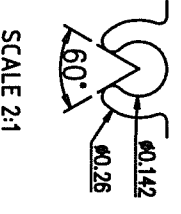
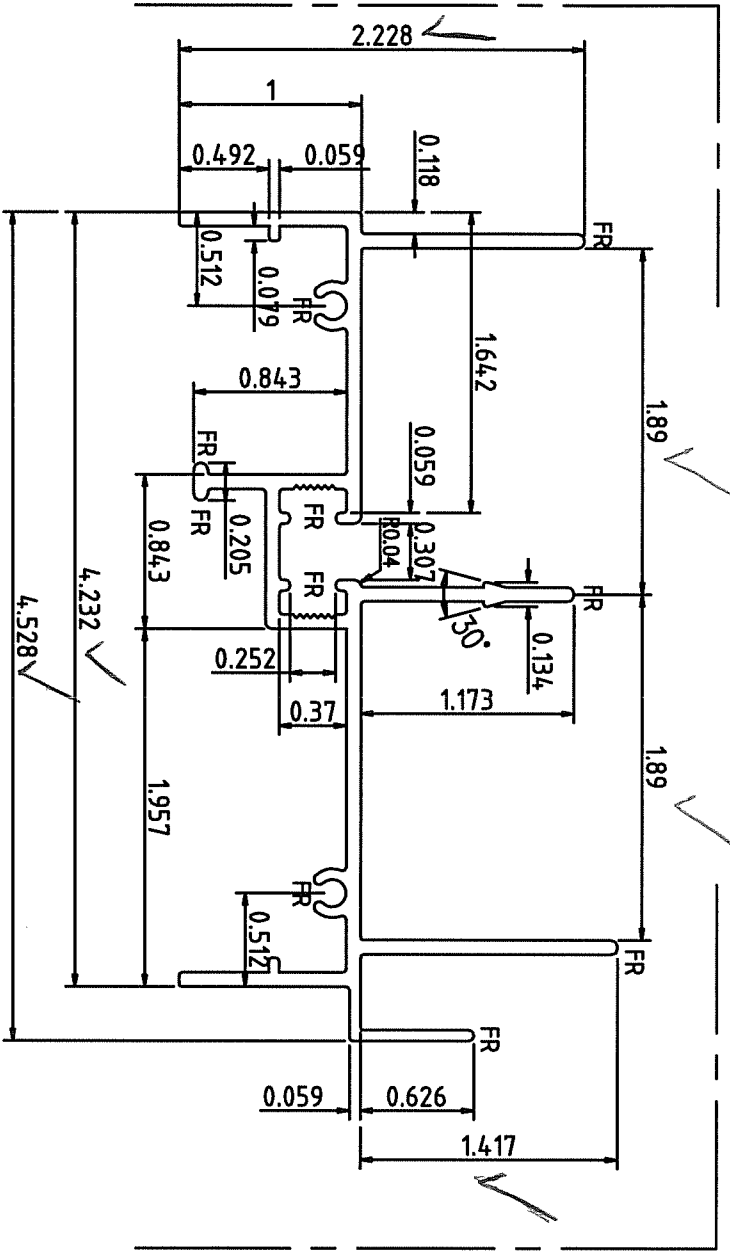
CUSTOMER ALL SEASONS	SCALE	1:1
OUT ROUND	SCALE	5.316
EST. AREA sq.inch	2.43	
EST. WEIGHT Lbs./Foot	2.9	
PERIMETER inch	28.98	

UNSP. THICKNESS inch	0.12±.006	STANDARD	BB5237-2004
UNSP. RADIUS inch	R0.02	ALLOY/TEMPER	6063-T5
DRAWN	TY J	DATE	11.6.2006
AUDITING		DATE	
CHECKED		DATE	
APPROVED		DATE	



ZHONG SHAN CITY GOLD
 SUN ALUMINIUM

TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED
 REPORT NO. NCTL-110-10874-1
 TEST DATE 5/21/07



SCALE 2:1

Injection Area: 0.272inch

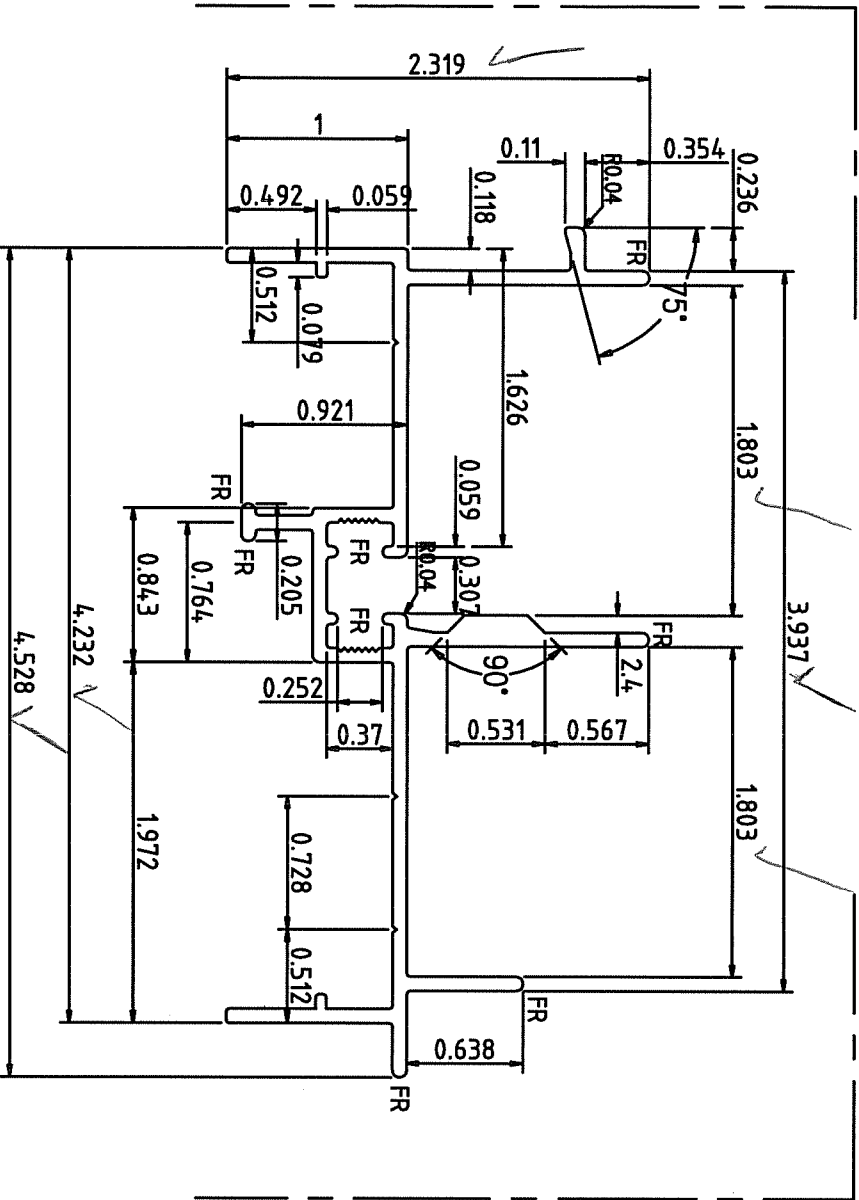
size range	tolerance
<=0.118	±0.0055
>0.118-0.237	±0.0071
>0.237-0.473	±0.0079
>0.473-0.748	±0.0091
>0.748-0.985	±0.01
>0.985-1.496	±0.012
>1.496-1.969	±0.0142
>1.969-3.937	±0.0242
>3.937-5.906	±0.0339
>5.906-7.874	±0.0441
angle tolerance	±1°

CUSTOMER	DWG	DWG.NO.	MG0378	SEC.NO.	OUT ROUND	SCALE	1:1	4.686	EST. AREA	1.038	UNSP. THICKNESS	0.079±.0055	STANDARD	GB5237-2004	DRAWN	TYJ	DATE	11/6/2006
CUSTOMER	ALL SEASONS								EST. WEIGHT	1.2513	UNSP. RADIUS	R0.02	ALLOY/TEMPER	6063-T5	AUDITING		DATE	
PERIMETER	26.575								EST. WEIGHT	1.2513	UNSP. RADIUS	R0.02	ALLOY/TEMPER	6063-T5	AUDITING		DATE	
PERIMETER	26.575								PERIMETER	26.575							DATE	
SCALE	1:1								OUT ROUND	4.686							DATE	
SCALE	1:1								OUT ROUND	4.686							DATE	
SCALE	1:1								OUT ROUND	4.686							DATE	



ZHONG SHAN CITY GOLD
 SUN ALUMINIUM

CHECKED	DATE
APPROVED	



Injection Area: 0.272in²

V=0.02x90°

TEST SPECIMEN COMPLIES
 WITH THESE DETAILS.
 ANY DEVIATION IS NOTED
 REPORT NO. NCTL-110-10894
 TEST DATE 5/21/07

size range	tolerance
≤0.118	±0.0055
>0.118-0.237	±0.0071
>0.237-0.473	±0.0079
>0.473-0.748	±0.0091
>0.748-0.985	±0.01
>0.985-1.496	±0.012
>1.496-1.969	±0.0142
>1.969-3.937	±0.0242
>3.937-5.906	±0.0339
>5.906-7.874	±0.0441

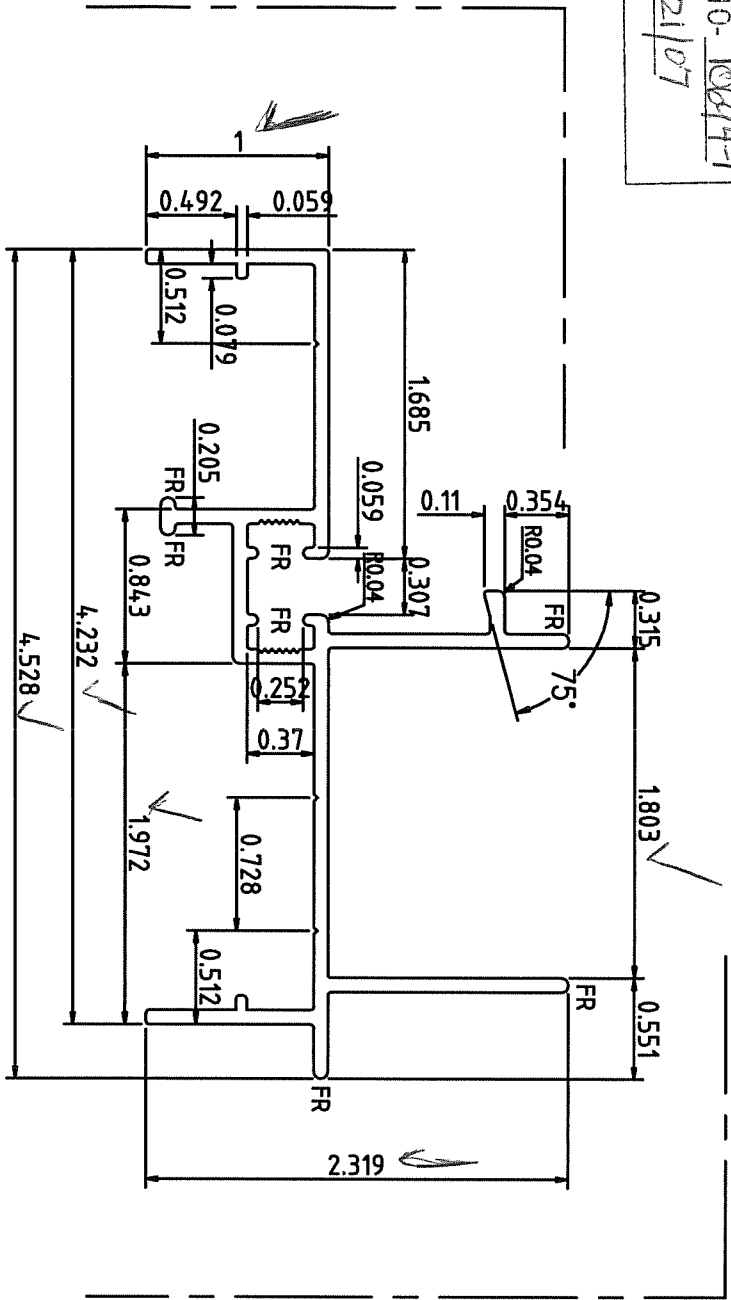
Unspecified tolerance
angle tolerance ±1°

CUSTOMER	DWG	DWG.NO.	MG0379	SEC.NO.	OUT ROUND	SCALE	1:1	4.686	
CUSTOMER	DWG	DWG.NO.	MG0379	SEC.NO.	OUT ROUND	SCALE	1:1	4.686	
EST. AREA	0.978	UNSP. THICKNESS	0.079 ± 0.0055	STANDARD	GB5237-2004	DRAWN	TYJ	DATE	11/6/2006
EST. WEIGHT	1.179	UNSP. RADIUS	R0.02	ALLOY/TEMPER	6063-T5	AUDITING		DATE	
PERIMETER	23.504					CHECKED		DATE	
						APPROVED		DATE	



ZHONG SHAN CITY GOLD
 SUN ALUMINIUM

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED
REPORT NO. NCTL-110-~~10084-1~~
TEST DATE 5/21/07



Injection Area: 0.272in²h

size range	tolerance
<0.118	±0.0055
>0.118-0.237	±0.0071
>0.237-0.473	±0.0079
>0.473-0.748	±0.0091
>0.748-0.985	±0.01
>0.985-1.496	±0.012
>1.496-1.969	±0.0142
>1.969-3.937	±0.0242
>3.937-5.906	±0.0339
>5.906-7.874	±0.0441
angle tolerance	±1°

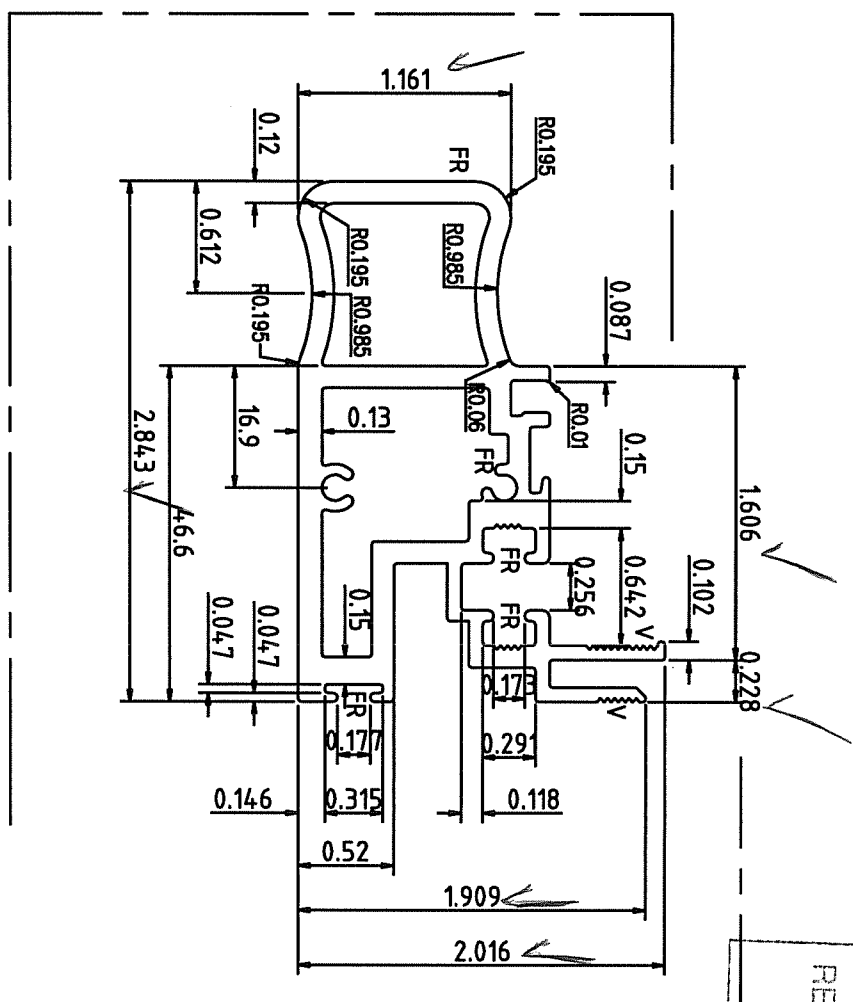
CUSTOMER: DWG	DWG. NO.	MG0380	SEC. NO.
CUSTOMER: DWG	DWG. NO.	MG0380	SEC. NO.

EST. AREA Inch ²	0.885	UNSP. THICKNESS Inch	0.079±.0055	STANDARD	6063-T5	DATE	11/6/2006
EST. WEIGHT Lbs./Foot	1.066	UNSP. RADIUS Inch	R0.02	ALLOY/TEMPER	6063-T5	DATE	
PERIMETER Inch	22.205	SCALE	1:1	DATE		DATE	
OUT. ROUND Inch	4.686	SCALE	1:1	DATE		DATE	

ZHONG SHAN CITY GOLD
SUN ALUMINIUM

CHECKED	DATE
AUDITING	DATE
APPROVED	DATE

TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED
 REPORT NO. NCTL-110-10384-1
 TEST DATE 5/21/07



V=0.02x90° SCALE 1:1

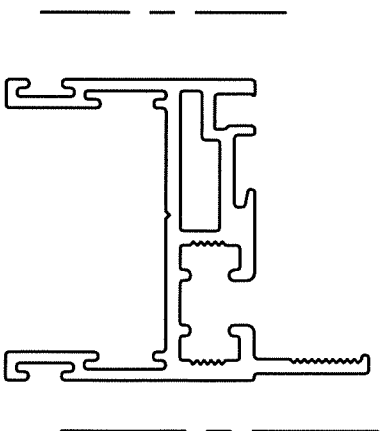
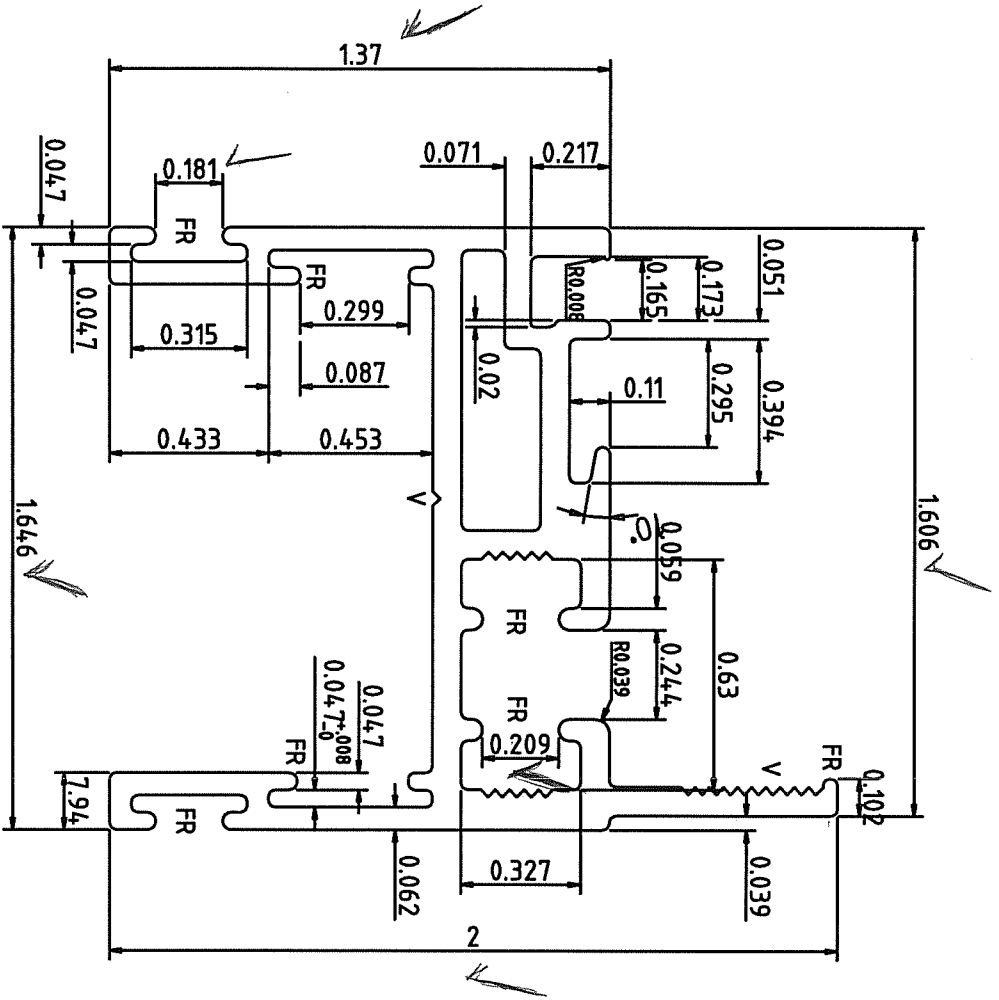
Injection Area: 0.228inch

Unspecified tolerance size range	tolerance
<0.118	±0.0055
>0.118-0.237	±0.0071
>0.237-0.473	±0.0079
>0.473-0.748	±0.0091
>0.748-0.985	±0.01
>0.985-1.496	±0.012
>1.496-1.969	±0.0142
>1.969-3.937	±0.0242
>3.937-5.906	±0.0339
>5.906-7.874	±0.0441
angle tolerance	±1°

CUSTOMER.DWG	DWG.NO.	MG0381	SEC.NO.	OUT ROUND	3.347	SCALE	1:1	EST. AREA	1.368	UNSP. THICKNESS	0.12±0.0055	STANDARD	B5237-2004	DRAWN	TYJ	DATE	11/6/2006
CUSTOMER SEASONS								EST. WEIGHT	1.632	UNSP. RADIUS	R0.02	ALLOY/TEMPER	6063-T5	AUDITING		DATE	
								PERIMETER	15.63					CHECKED		DATE	
														APPROVED		DATE	



ZHONG SHAN CITY GOLD SUN ALUMINIUM



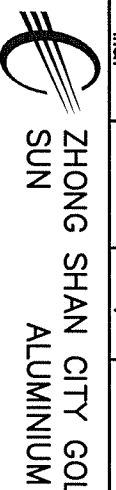
TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED
REPORT NO. NOTL-110-10694-1
TEST DATE 5/21/07

V=0.02*90°

Injection Area: 0.218inch

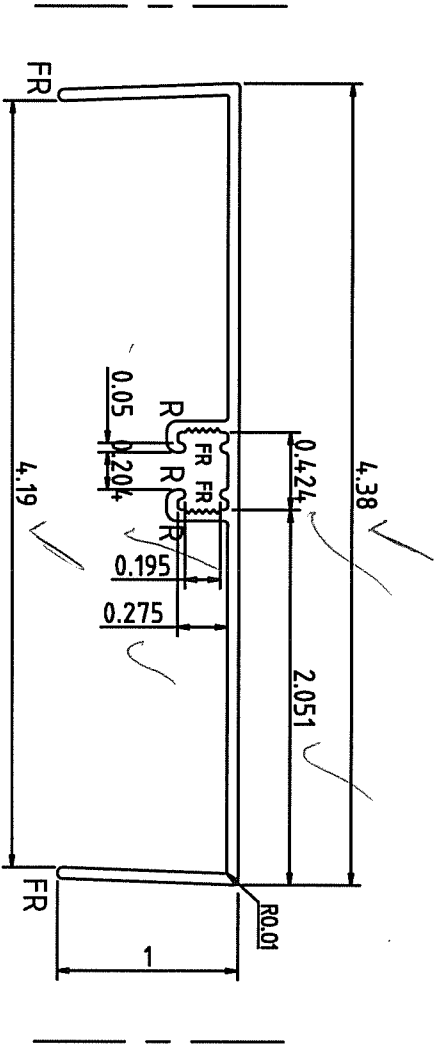
Unspecified tolerance size range	tolerance
<0.118	±0.0055
>0.118-0.237	±0.0071
>0.237-0.473	±0.0079
>0.473-0.748	±0.0091
>0.748-0.985	±0.01
>0.985-1.496	±0.012
>1.496-1.969	±0.0142
>1.969-3.937	±0.0242
>3.937-5.906	±0.0339
>5.906-7.874	±0.0441
angle tolerance	±1°

CUSTOMER. DWG	DWG. NO.	MG0382	SEC. NO.	OUT ROUND	2.56	SCALE	1:1	EST. AREA	0.569	UNSP. THICKNESS	0.079 ± 0.0055	STANDARD	GB5237-2004	DRAWN	TYJ	DATE	11/6/2006
CUSTOMER. DWG	DWG. NO.	MG0382	SEC. NO.	OUT ROUND	2.56	SCALE	1:1	EST. WEIGHT	0.6855	UNSP. RADIUS	R0.02	ALLOY/TEMPER	6063-T5	AUDITING		DATE	
								PERIMETER	13.583					CHECKED		DATE	
														APPROVED		DATE	



ZHONG SHAN CITY GOLD SUN ALUMINIUM

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED
REPORT NO. NCTL-110-10694-1
TEST DATE 5/21/07



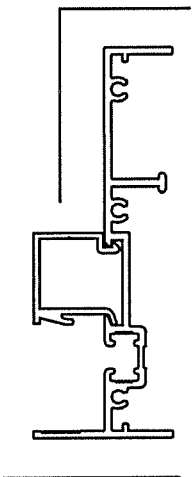
R=R0.02
V=0.02x90°

size range	tolerance
≤0.118	±0.0055
>0.118-0.237	±0.0071
>0.237-0.473	±0.0079
>0.473-0.748	±0.0091
>0.748-0.985	±0.01
>0.985-1.496	±0.012
>1.496-1.969	±0.0142
>1.969-3.937	±0.0242
>3.937-5.906	±0.0339
>5.906-7.874	±0.0441
angle tolerance	±1°

CUSTOMER: DWG	DWG. NO.	MG0391	SEC. NO.		OUT ROUND	4.449	SCALE	1:1	EST. AREA	0.444	UNSP. THICKNESS	0.062±0.0055	STANDARD	BB5237-2004	DRAWN	TYJ	DATE	11/6/2006
CUSTOMER: SEASONS					EST. WEIGHT	0.54	UNSP. RADIUS	R0.02	ALLOY/TEMPER	6063-T5	AUDITING		CHECKED		DATE			
					PERIMETER	14.567							APPROVED		DATE			
					SCALE	1:1												
					OUT ROUND	4.449												

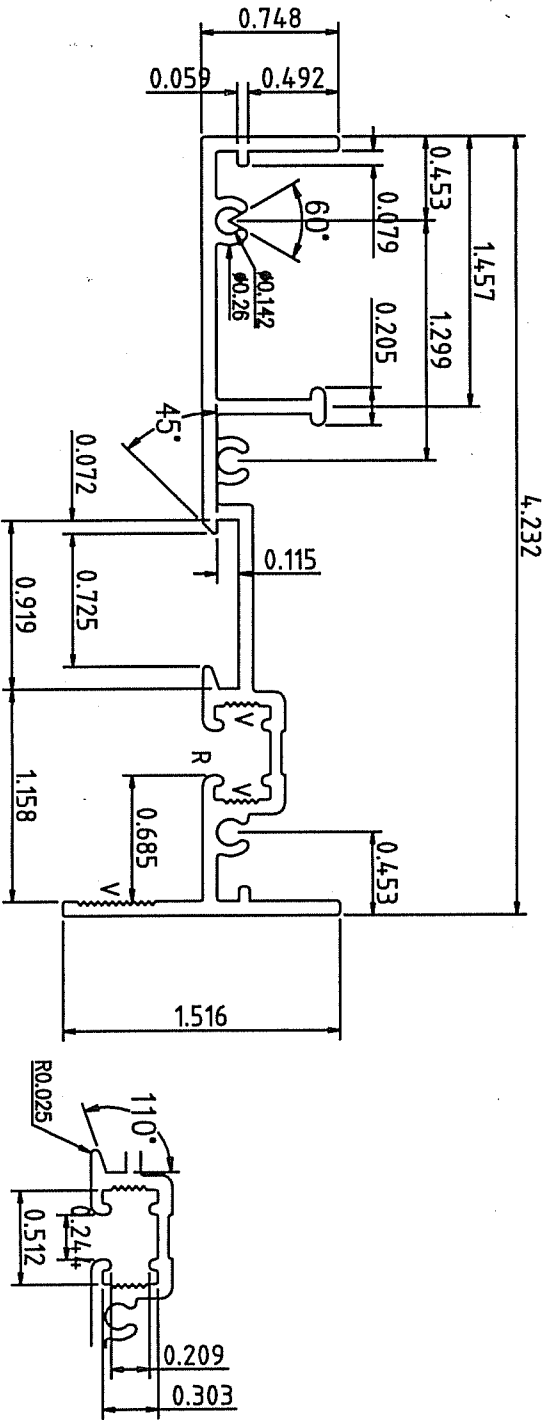


ZHONG SHAN CITY GOLD
SUN ALUMINIUM



AL0200

SCALE 1:2



V=0.02x90°

R=R0.06

Unspecified size range	tolerance
<0.118	±0.0055
>0.118-0.237	±0.0071
>0.237-0.473	±0.0079
>0.473-0.748	±0.0091
>0.748-0.985	±0.01
>0.985-1.496	±0.012
>1.496-1.969	±0.0142
>1.969-3.937	±0.0242
>3.937-5.906	±0.0339
>5.906-7.874	±0.0441
angle tolerance	±1°

CUSTOMER	DWG. NO.	MG0387	SEC. NO.	OUT ROUND	SCALE	1:1	EST. AREA	EST. WEIGHT	PERIMETER	UNSP. THICKNESS	UNSP. RADIUS	STANDARD	DRAWN	TY J	DATE
CUSTOMER, DWG	DWG. NO.	MG0387	SEC. NO.	OUT ROUND	SCALE	1:1	0.725	0.874	19.02	0.079±0.0055	R0.02	GB5237-2004			11.24.2006
ZHONG SHAN CITY GOLD ALUMINIUM SUN													CHECKED	DATE	
													APPROVED	DATE	