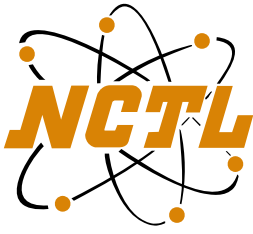


MGM Industries

*SIMULATION PERFORMANCE &
SOLAR HEAT GAIN REPORT*

*Series "4006"
Fixed*

NCTL-110-10898-01



NATIONAL CERTIFIED TESTING LABORATORIES

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

Simulation Performance, Solar Heat Gain Coefficient, Visible Transmittance and Condensation Resistance Calculation Report

REPORT NO: NCTL-110-10898-01
SIMULATION DATE: 08/30/07
REPORT DATE: 08/30/07

Client: MGM Industries
287 Freehill Road
Hendersonville, TN 37075

Product Line: MGM Industries' Series "4006" Fixed

Specification: NFRC 100-2004: "Procedure for Determining Fenestration Product U-Factors".
NFRC 200-2004: "Procedure for Determining Fenestration Product Solar Heat
Gain Coefficients and Visible Transmittance at Normal Incidence".
NFRC 500-2004: "Procedure for Determining Fenestration Product
Condensation Resistance Values".
Therm 5.x / Window 5.x NFRC Simulation Manual (Approved at test date)

**Procedures
and
Compliance:** All U-factor, Solar Heat Gain Coefficients, Visible Transmittance and
Condensation Resistance values were calculated using the following
characteristics: a default value of 0.30 solar absorptance for all products other
than window glazed wall and sloped glazing which have a solar absorptance of
0.50. The best glazing option was used as the configuration for SHGC and VT
specialty products table. NCTL is a NFRC accredited simulation laboratory and
this simulation was conducted in full compliance with NFRC requirements. This
report does not constitute an opinion or endorsement by the laboratory. Ratings
values included in this report are for submittal to an NFRC-licensed IA and are
not meant to be used directly for labeling purposes. Only those values identified
on a valid Certification Authorization Report (CAR) by an NFRC accredited
Inspection Agency (IA) are to be used for labeling purposes. Rounding per
IEEE/ASTM SI 10-1997 except section 5.4.1.3.

PRODUCT LINE DESCRIPTION

General: The product line modeled is MGM Industries' Series "4006" Fixed.

Model Size Simulations: 1200mm x 1500mm {47.244" x 59.055"}

Note: All product drawings are included in Attachment A.

Weatherseals:

Location	Weather Seal Description
Head	(1) single strips of weather-strip
Left Jamb	(3) single strips of weather-strip
Right Jamb	(3) single strips of weather-strip
Sill	(1) bulb seal

Finish: Vinyl

Dividers: Where applicable, dividers were not modeled because the gap between dividers and lites were greater than 3mm. For Solar Heat Gain and Visual Light Transmittance default dividers less than 1" and greater or equal to 1" and default patterns were used for simulations.

Group Leaders: The following group leaders are actual simulated individual products per NFRC 4.2.4 and the NFRC Technical Interpretations where applicable. All remaining individual products' U-factors in the corresponding groups are represented by the group leader's U-factor.

COG Group Leader: Individual products which differ from another (base) individual product in glazing tint and/or obscenity (including obscure glass, fritted glass, and wired glass) only may be assumed to have the same U-factor as the base product unless this change is associated with a change in coating properties.

COG Group Leader:

Glazing ID	Glazing Description	U _{COG}
001	AFG Clear / Air / AFG Clear	0.481*
005	AFG Clear / Air / AFG TiAC36 LoE (e=0.034 on 3)	0.298*

Spacer Group Leader:

Spacer Description	U _{FACTOR}
Intercept	0.326*
Swiggle	0.322

* Group Leader

Modeling Assumptions and Comments Deemed Important:**Sealing Rules:**

All cavities that are opened to the exterior within a frame section shall be modeled according to ISO 15099, Section 6.7.1, which states that cavities greater than 2mm but equal to or less than 10 mm shall be modeled as "slightly ventilated air cavities". For physical testing purposes the product is sealed at the inside surface with tape or equivalent to prevent air infiltration. Air cavities created by this sealing technique must be simulated with the standard NFRC "Frame Cavity" material. If cavities on the frame are sealed (covered) to the surround panel with tape or equivalent, those cavities are also filled with NFRC "Frame Cavity" material within the simulation model. If the frame is not covered or sealed, those areas are left hollow or opened within the simulation model.

Continuous elements:

All elements continuous within the product line are identified from the Bill-of-Materials and detailed drawings via the referenced dimensions and cut lengths as compared to the overall size of the product.

General Notes:

The Condensation Resistance results obtained from this procedure are for controlled laboratory conditions and do not include the effects of air movement through the specimen, solar radiation, and the thermal bridging that may occur due to the specific design and construction of the fenestration system opening.

Miscellaneous assumptions:

1. The screen extrusions were not modeled.
2. All radii are simulated at angles.
3. Any spacer simulated using a spacer system from the Frame Spacer Library match the required configurations for this manufacturer's spacer system.
4. The modeling was performed in accordance with the manufacturer's assembly drawing from a DXF file.

Component Area and Frame Heights:

Frame heights, calculated areas, area weighted values for U-factor, SHGC, and VT, and center -of-glazing are located in approved NFRC simulation programs for all individual products.

Specialty Products Table: The specialty products method allows the manufacturer to determine the overall product SHGC and VT for any glazing option. The center of glass SHGC and/or VT must be determined using WINDOW 5.2. The method gives overall product SHGC and VT indexed on center of glass properties.

SHGC	No Dividers	Dividers <1"	Dividers ≥1"
0.00	0.004	0.007	0.010
1.00	0.753	0.673	0.597

VT	No Dividers	Dividers <1"	Dividers ≥1"
0.00	0.000	0.000	0.000
1.00	0.749	0.666	0.588

$$\text{SHGC} = \text{SHGC}_0 + \text{SHGC}_{\text{COG}} (\text{SHGC}_1 - \text{SHGC}_0)$$

$$\text{VT} = \text{VT}_0 + \text{VT}_{\text{COG}} (\text{VT}_1 - \text{VT}_0)$$

NCTL Therm Section Filename Methodology

Filename Codes Example: CU_HD2_003.THM	
HD	Frame Section (Head)
2	Glass Size (2.5mm)
003	Glazing ID #3
CU	Spacer (Intercept)

Individual Product Descriptions and Model Size Matrix of U-Factors, SHGC, VT & CR

All U-factors are given in BTU/HR/ft²/°F

Product Description	Product Number	Pane ID (Exterior)	Pane ID (Interior)	Pane Thickness (Exterior)	Pane Thickness (Interior)	Gap	Gap Fill	% of Gap Fill	Emissivity Surface 2	Emissivity Surface 3	U-factor C-O-G	SHGC C-O-G	VT C-O-G	Spacer	Grid Type	Tint	U-factor	Condensation Resistance	Solar Heat Gain Coefficient (ND)	Visual Transmittance (ND)	Solar Heat Gain Coefficient (<1")	Visual Transmittance (<1")
CLR_SS_AIR	001	885	885	0.098	0.098	0.553	AIR				0.48	0.80	0.83	CU-D, A5-D	N,G	CL	0.46	43	0.61	0.62	0.54	0.55
CLR_DS_AIR		887	887	0.118	0.118	0.514	AIR				0.48	0.79	0.82	CU-D, A5-D	N,G	CL	0.46	43	0.59	0.61	0.53	0.55
TiAC36#3_SS_AIR	002	885	964	0.098	0.098	0.553	AIR			0.034	0.30	0.47	0.69	CU-D, A5-D	N,G	LE	0.33	55	0.35	0.52	0.32	0.46
TiAC36#2_SS_AIR		964	885	0.098	0.098	0.553	AIR		0.034		0.30	0.37	0.69	CU-D, A5-D	N,G	LE	0.33	55	0.28	0.52	0.25	0.46
TiAC36#3_DS_AIR		887	965	0.118	0.118	0.514	AIR			0.034	0.29	0.46	0.68	CU-D, A5-D	N,G	LE	0.33	55	0.35	0.51	0.31	0.45
TiAC36#2_DS_AIR		965	887	0.118	0.118	0.514	AIR		0.034		0.29	0.37	0.68	CU-D, A5-D	N,G	LE	0.33	55	0.28	0.51	0.25	0.45

A baseline product test in accordance with the "NFRC 102: Test Procedure for Measuring the Steady-State Thermal Transmittance of Fenestration Systems" is required in order to validate the "Model Size Matrix of U-Values" as previously indicated. Per Section 1.4.3 of NFRC 100-2004, "the baseline product is the individual product selected for validation testing". **The individual product selected as the baseline product shall be the lowest simulated individual product or an individual product having a simulated U-factor within 0.60 W/(m²*K) (0.10 BTU/HR/ft²/°F) or 20% of the listed lowest simulated U-factor.**

Product Description	Pane ID (Exterior)	Pane ID (Interior)	Pane Thickness (Exterior)	Pane Thickness (Interior)	Gap	Gap Fill	Emissivity Surface 3	Spacer	Grid Type	Tint	U-factor
TiAC36#3_DS_AIR Overall Size: 47 3/16 x 60	887	965	0.118	0.118	0.514	AIR	0.034	CU-D	N	LE	0.33

Note:

1. For lowest U-factor listings where multiple individual products are shown, validation testing can be conducted on any of the configurations listed.
2. Actual simulated individual products are required for product line validation testing.
3. All individual products in the product line were simulated using the approved NFRC THERM program.

For the purposes of validation testing, production line units and sizes shall be used to represent the baseline product. Per the client, the model size is manufactured as part of their product line; therefore the previously listed model size can be used for baseline product validation testing.

Copies of this report and the detailed product drawings will be retained by NCTL for a period of four (4) years. This report may not be reproduced, except in full, without the approval of NCTL. The results only to the fenestration product simulated. The attached diskette(s) contain(s) all required NFRC data and software files.

NATIONAL CERTIFIED TESTING LABORATORIES

A handwritten signature in black ink that reads "Justin M. Robinson". Below the signature is a small logo for NCTL (National Certified Testing Laboratories) with the text "DIGITAL SIGNATURE" underneath.

JUSTIN M. ROBINSON
NFRC Accredited Simulator
Simulator-In-Responsible-Charge

A handwritten signature in black ink that reads "Steven H. Coble". Below the signature is a small logo for NCTL (National Certified Testing Laboratories) with the text "DIGITAL SIGNATURE" underneath.

STEVEN H. COBLE
NFRC Accredited Simulator
Simulator-In-Responsible-Charge

Attachments

Report Log

Product Line: *MGM Industries's Series "4006" Fixed*

Date:
08/30/07 - *Original Report issued to MGM Industries and Inspection Agency*

Door	
Code	Description
EM	Embossed
FL	Flush
LF	Full Lite
LH	1/2 - Lite
LQ	1/4 - Lite
LT	3/4 - Lite
N	Not Applicable
RP	Raised Panel

Grid	
Code	Description
G	Grids between the glass
N	No Muntins
S	Simulated Divided Lites
T	True Muntins

Sealant	
Code	Description
D	Dual Seal Spacer System
N	Not Applicable
S	Single Seal Spacer System

Gap Fill	
Code	Description
AIR	Air
AR3	Argon/Krypton/Air Mixture
ARG	Argon
KRY	Krypton
N	Not Applicable

Glass Tint	
Code	Description
AZ	Azurlite
BG	Blinds between the Glazing
BL	Blue
BZ	Bronze
CL	Clear
DV	Dynamic Glazing (Variable)
DY	Dynamic Glazing (Non-Variable)
EV	Evergreen
GC	Gold (reflective coating)
GD	Gold
GR	Green
GY	Gray
LE	Low 'e' Coating
OT	Other (use comment field)
RC	Solar or Reflective Coating
RG	Roller shades between Glazing
RS	Silver (reflective coating)
SF	Suspended Polyester Film
SR	Silver

Spacer		
Code	Type	Definition
A1-D	Aluminum	Aluminum spacer system - dual sealed.
A1-S	Aluminum	Aluminum spacer system - single sealed.
A2-D	Aluminum (thermally-broken)	Thermally improved aluminum spacer system - dual sealed.
A2-S	Aluminum (thermally-broken)	Thermally improved aluminum spacer system - single sealed.
A3-D	Aluminum-reinforced polymer	Polymer spacer material with aluminum substance - dual sealed.
A3-S	Aluminum-reinforced polymer	Polymer spacer material with aluminum substance - single sealed.
A4-D	Aluminum/Wood	Composite spacer system of two materials - dual sealed.
A4-S	Aluminum/Wood	Composite spacer system of two materials - single sealed.
A5-D	Aluminum-reinforced butyl	Butyl spacer material with aluminum substrate - dual sealed.
A5-S	Aluminum-reinforced butyl	Butyl spacer material with aluminum substrate - single sealed.
A6-D	Aluminum/Foam/Aluminum	Two aluminum spacers separated by foam-type material - dual sealed
A6-S	Aluminum/Foam/Aluminum	Two aluminum spacers separated by foam-type material - single sealed
A7-D	Aluminum U-shaped	U-shaped spacer system embedded in sealant - dual sealed.
A7-S	Aluminum U-shaped	U-shaped spacer system embedded in sealant - single sealed.

Spacer		
Code	Type	Definition
A8-D	Aluminum-Butyl Composite	Exposed corrugated aluminum spacer with butyl - dual sealed.
A8-S	Aluminum-Butyl Composite	Exposed corrugated aluminum spacer with butyl - single sealed.
CS-D	Coated Steel	Coated Steel (galvanized or tinplated) - Dual seal
CS-S	Coated Steel	Coated Steel (galvanized or tinplated) - Single seal
CU-D	Coated Steel U-Shaped	Coated Steel (galvanized or tinplated) U-shaped spacer system embedded in sealant - Dual sealed
CU-S	Coated Steel U-Shaped	Coated Steel (galvanized or tinplated) U-shaped spacer system embedded in sealant - Single sealed
ER-D	EPDM Reinforced Butyl	EPDM reinforced butyl spacer system - dual sealed.
ER-S	EPDM Reinforced Butyl	EPDM reinforced butyl spacer system - single sealed.
FG-D	Fiberglass	Fiberglass - dual sealed.
FG-S	Fiberglass	Fiberglass - single sealed.
GL-S	Glass	Welded glass edge condition at glazing perimeter.
N	Not Applicable	
OF-D	Organic Foam	Organic-based foam spacer system - dual sealed.
OF-S	Organic Foam	Organic-based foam spacer system - single sealed.
P1-D	Polycarbonate- Butyl Composite	Exposed corrugated polycarbonate spacer with butyl - dual sealed.
P1-S	Polycarbonate- Butyl Composite	Exposed corrugated polycarbonate spacer with butyl - single sealed.
PU-D	Polyurethane foam	Polyurethane foam - dual sealed.
PU-S	Polyurethane foam	Polyurethane foam - single sealed.
S2-D	Steel (thermally-broken)	Stainless steel spacer with urethane thermal break - dual sealed.
S2-S	Steel (thermally-broken)	Stainless steel spacer with urethane thermal break - single sealed.
S3-D	Steel/Foam/Steel	Two steel spacers separated by foam-type material - dual sealed.
S3-S	Steel/Foam/Steel	Two steel spacers separated by foam-type material - single sealed.
S5-D	Steel reinforced butyl	Butyl spacer material with stainless steel substrate - dual sealed.
S5-S	Steel reinforced butyl	Butyl spacer material with stainless steel substrate - single sealed.
S6-D	Steel U-channel w/ thermal cap	U-shaped steel spacer system with a thermal cap - dual sealed.
S6-S	Steel U-channel w/ thermal cap	U-shaped steel spacer system with a thermal cap - single sealed.
SS-D	Stainless Steel	Stainless Steel - Dual Seal
SS-S	Stainless Steel	Stainless Steel - Single Sealed
SU-D	Stainless Steel U-Shaped	Stainless Steel U-shaped spacer system embedded in sealant - Dual sealed
SU-S	Stainless Steel U-Shaped	Stainless Steel U-shaped spacer system embedded in sealant - Single sealed
TP-D	Thermo-plastic	Thermo-plastic - dual sealed.
TP-S	Thermo-plastic	Thermo-plastic - single sealed.
TS-D	Thermo-plastic	Thermoplastic spacer with stainless steel substrate - dual-sealed
TS-S	Thermo-plastic	Thermoplastic spacer with stainless steel substrate - single-sealed
WD	Wood	Wood spacer system
ZF-D	Silicone Foam	Silicone foam spacer system - dual sealed.
ZF-S	Silicone Foam	Silicone foam spacer system - single sealed.
ZS-D	Silicone/Steel	Combination of two separate spacers: a steel spacer and silicone spacer - dual sealed.
ZS-S	Silicone/Steel	Combination of two separate spacers: a steel spacer and silicone spacer - single sealed.

ATTACHMENT A

Product Drawings

Assembly Code	Part #	Description	Qty	Height	Width	Unit Code	Vert	Sub Assy	Add Color	Fixed Length	R/Railing Fin
TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED. *****											
ASSCR1	AX1PH	Assembly Screw #1	4.00			EA		IA		Y	
ASS	1CL	Default Glass Type	1.00	7.3125	5.9325	SF		IA			R
GLSSPC	SN66-13/16	Glass Spacer	2.00		2.2500	LI	H	IA			
GLSSPC	SN66-13/16	Glass Spacer	2.00	2.2500		LI	H	IA			
HEADER	H-402	Frame Top Extrusion	1.00		5.8125	LI	H	IA		Y	
LJAMB	H-400	Left Side Extrusion	1.00	3.8750		LI	H	IA		Y	
RJAMB	H-400	Right Side Extrusion	1.00	3.8750		LI	H	IA		Y	
SILL	H-402	Bottom Extrusion	1.00		5.8125	LI	H	IA		Y	
VSWEEP	391	Full Vinyl Sweep	1.00			LI	H	IA		Y	
WTSTPH	H4301HW	Weather Strip(H)	1.00			LI	H	IA		Y	
WTSTPV	H4301HW	Weather Strip(V)	6.00			LI	H	IA		Y	

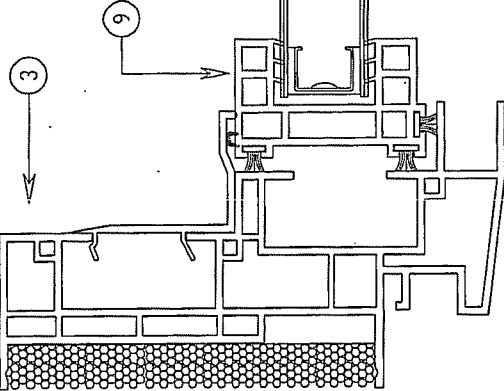
End of Subassembly 1A *****											
ASSCR1	AX1PH	Assembly Screw #1	4.00			EA		HF			
ASSCR2	AX2DFVHALL	Assembly Screw #2	4.00			EA		HF		R	
HEAD	H-400	Head Expander	1.00			LI	H	HF		Y	
FOAMWR	062002	Foam Wrap 1x2-7/8	1.00			LI		HF			
HDADPT	VR-2100	Header Adapter	1.00		3.8750	LI	H	HF		Y	
HEADER	H-4010	Frame Top Extrusion	1.00		1.1875	LI	H	HF		Y	
LJAMB	VR-2100	Left Jamb Adapter	1.00	3.5000	.0000	EA	H	HF		Y	
RJAMB	VR-2100	Right Jamb Adapter	1.00	3.5000		EA	H	HF		Y	
LJAMB	H-4010	Left Side Extrusion	1.00	1.4325		LI	H	HF		Y	
HISC	HGN101	Styofom F/Sill	1.00			EA		HF			
HISC	PAD	Adhesive Gskt F/Sill	2.00			EA		HF			
RJAMB	H-4010	Right Side Extrusion	1.00	1.4325		LI	H	HF		Y	
SCAULK	100	Silicone Caulk	1.00			EA		HF			
SEANSL	LV	Liquid Vinyl	4.00					HF		Y	

Assembly Code	Part	Section	Qty	Height	Width	Code	Unit	Vert	Sub	Assy	Color	Fixed	Length	N/Fin
TEST SPECIMEN COMPLIES WITH THESE DETAILS.														
ANY DEVIATION IS NOTED:														
SILL	NOTCH	10-1089	1	1.00		LI	H		HF		Y			
TEST COMPLETE: 08/30/07														
End of Subassembly HF *****														

TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED. NCTL-110-10898-01 TEST COMPLETE: 08/30/07

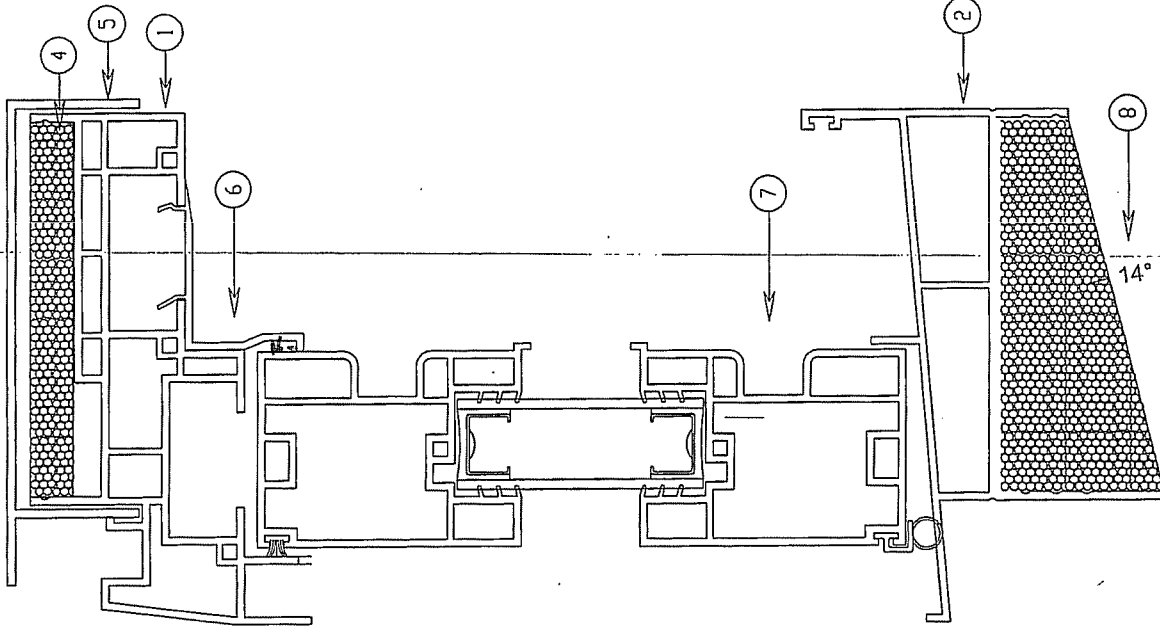
Window Dimension Width

3/4" IG



- 1 M-4010 FRAME HEAD
- 2 M-4011 FRAME SILL
- 3 M-4010 FRAME JAMB
- 4 62002 FOAM WRAP
- 5 608 HEAD EXPANDER
- 6 M-402 HEAD INSERT

- 7 M-8002 SASH HORIZONTAL
- 8 1013 STYROFOAM FILLER
- 9 M-8000 SASH VERTICAL



MGM INDUSTRIES 287 Freshhill Road Hendersonville, TN 37075 1-800-475-5584		TITLE: Vertical and Horizontal Cross-Section
MATERIALS: Series #4006 Picture Window		SCALE: DO NOT SCALE
DATE: 07-17-06	DRAWN BY: RGraves	
DWG NO: 1		Page

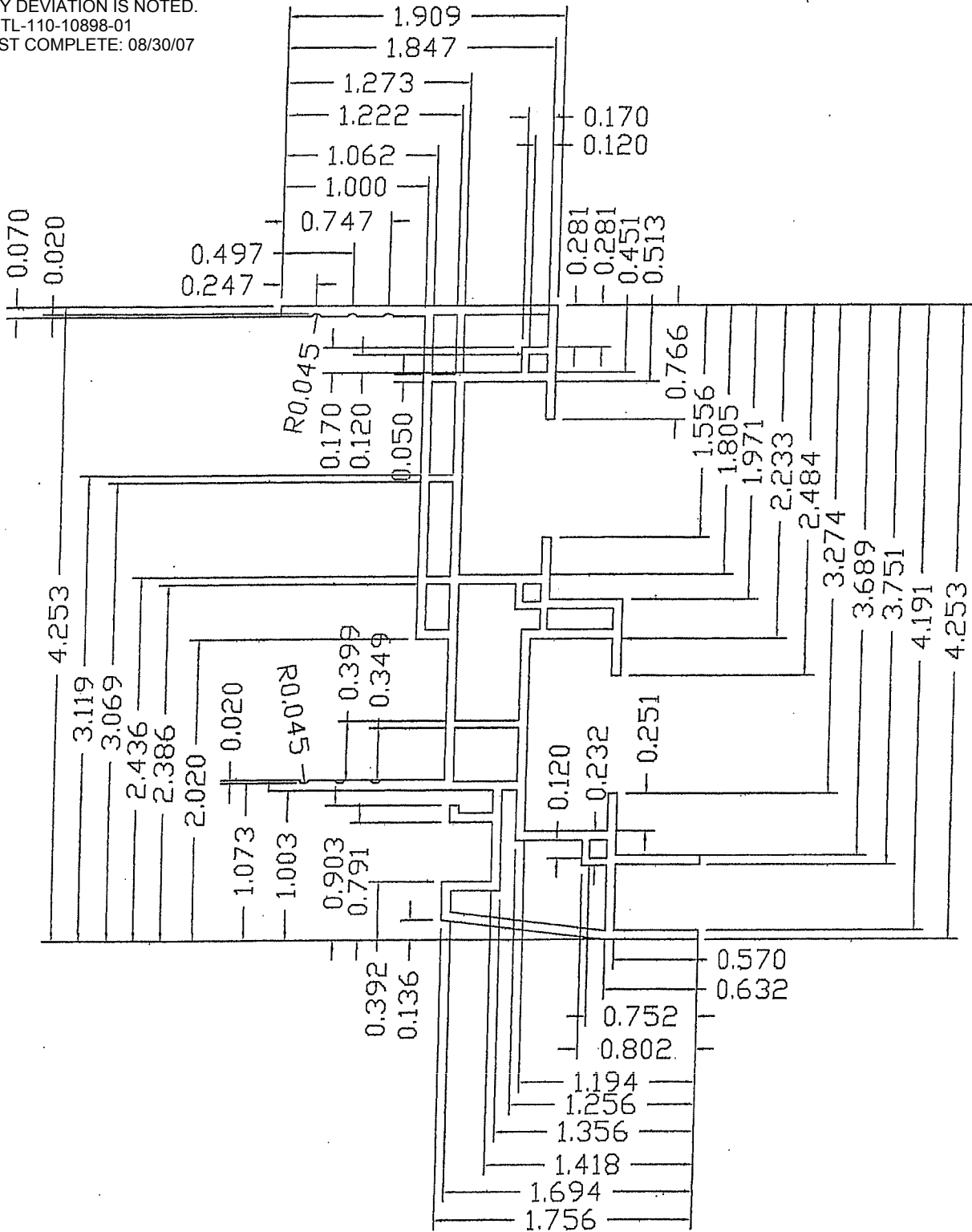
REVISIONS

TEST SPECIMEN COMPLIES WITH THESE DETAILS

ANY DEVIATION IS NOTED.
NCTL-110-10898-01
TEST COMPLETE: 08/30/07

REV.	DESCRIPTION

DATE	APPROVED



MGM INDUSTRIES
287 FREEHILL RD
HENDERSONVILLE, TN
37075

DESCRIPTION:
Series #4006
Main Frame
Head & Jamb

ALL RADI TO BE 0.015.
ALL WALL THK TO BE
0.0625 UNLESS
OTHERWISE SPECIFIED

DWG. NO.

M-4010

REV.

AREA

WT/FT

Date:

08/12/03

DO NOT SCALE

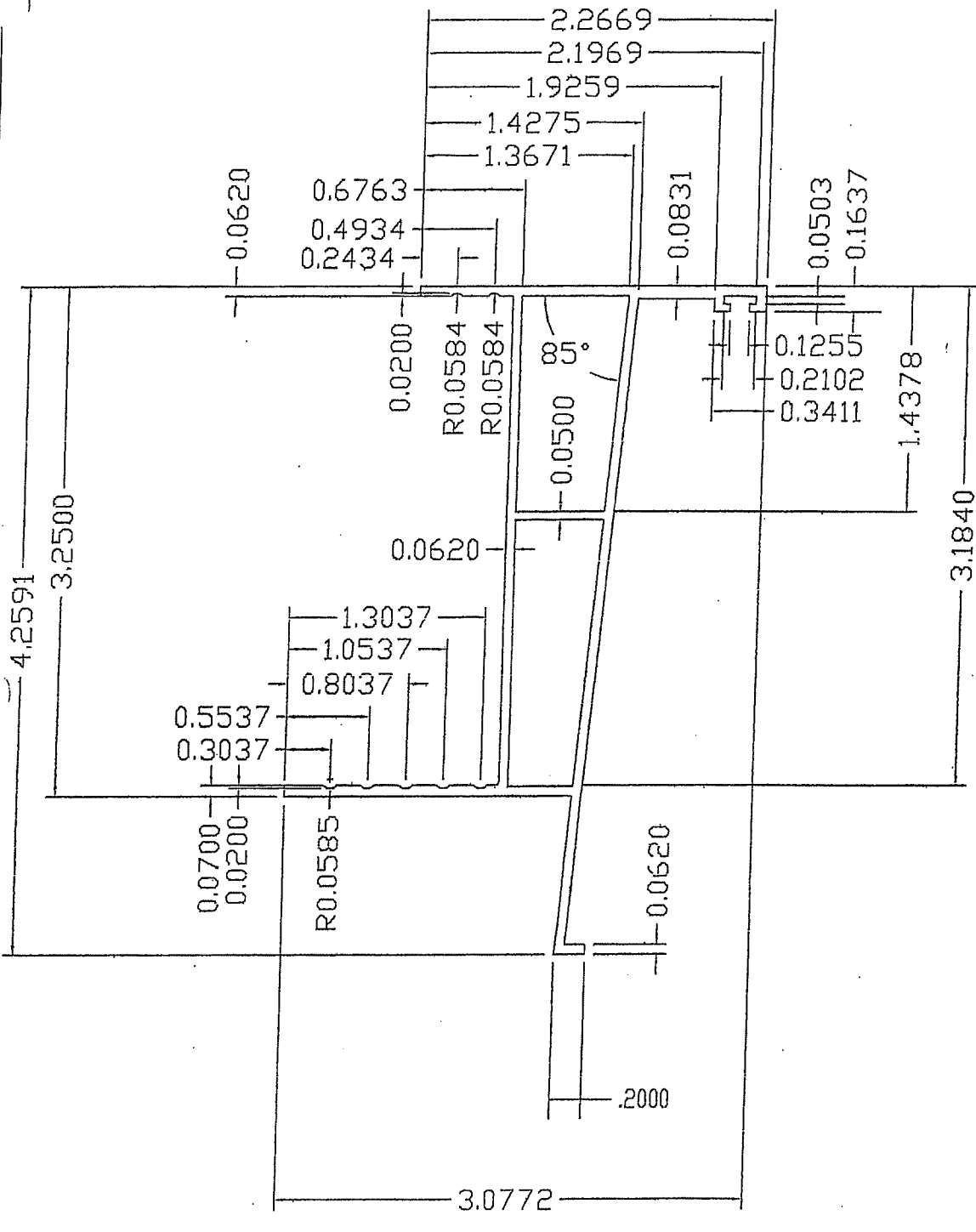
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BY: RGraves

REVISIONS

TEST SPECIMEN COMPLIES WITH THESE DETAILS ANY DEVIATION IS NOTED. NCTL-110-10898-01 TEST COMPLETE: 08/30/07	REV.	DESCRIPTION	DATE	APPROVED

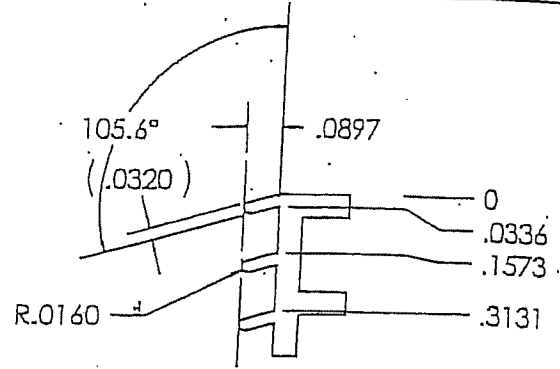
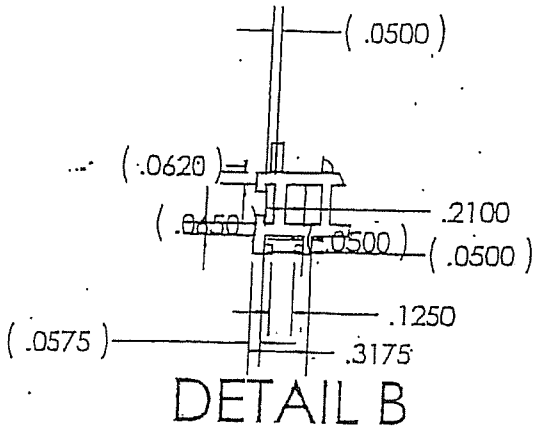


MGM INDUSTRIES 287 FREEHILL RD HENDERSONVILLE, TN 37075	DESCRIPTION:	ALL RADI TO BE 0.015. ALL WALL THK TO BE 0.0625 UNLESS OTHERWISE SPECIFIED	DWG. NO.	REV.
	Series #4006 Main Frame Sill		V-4011	
	DATE 09/06/03	AREA .8096	WT/FT .5052	BY: RJG Do Not Scale

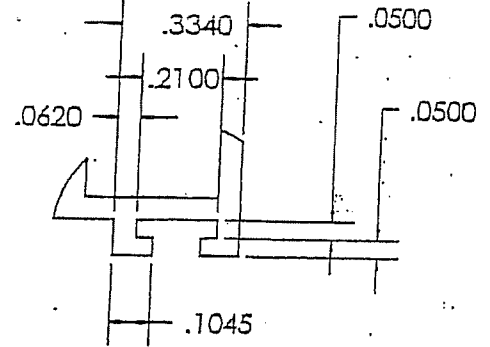
TEST SPECIMEN COMPLIES WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 NCTL 110-10898-01
 TEST COMPLETE: 08/30/07

REVISIONS

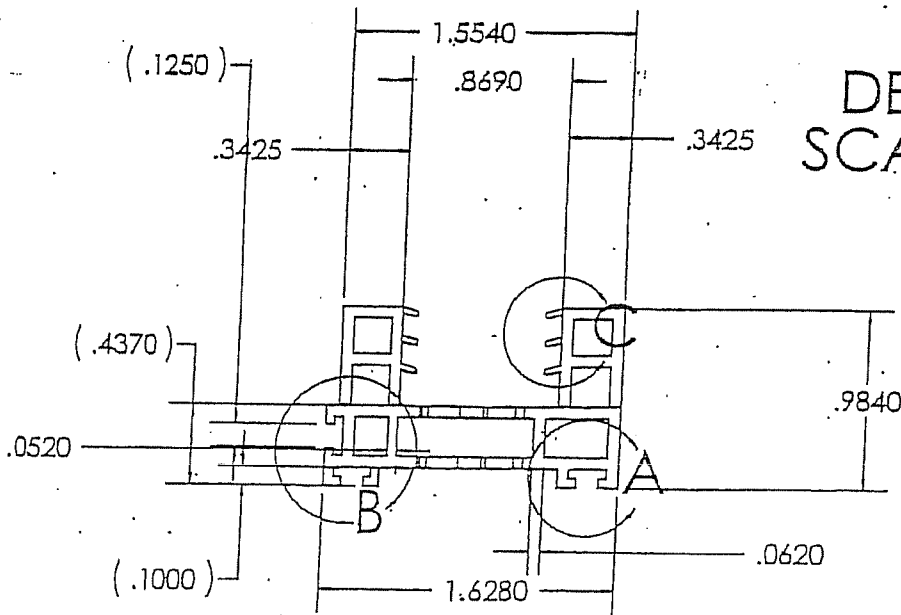
REV:	DESCRIPTION	DATE	APPROVED



SCALE 2 : 1



SCALE 2 : 1



MGM INDUSTRIES
 287 FREEHILL RD
 HENDERSONVILLE, TN
 37075

DESCRIPTION:
 8000 series sash

DATE
 02/07/00

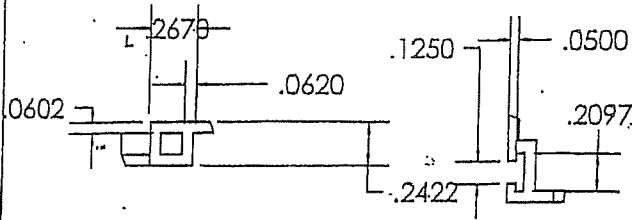
ALL RADI TO BE 0.015.
 ALL WALL THK TO BE
 0.0625 UNLESS
 OTHERWISE SPECIFIED

AREA .4959 WT/FT .3094 † BY: ABG

DWG. NO. REV.
 V-8000 1

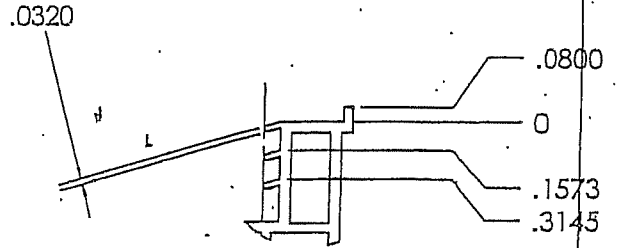
MOM

TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED. NCTL-110-10898-01 TEST COMPLETE: 08/30/07	REVISIONS			
	REV.	DESCRIPTION	DATE	APPROVED
	3	moved pivot bar location	07/28/00	

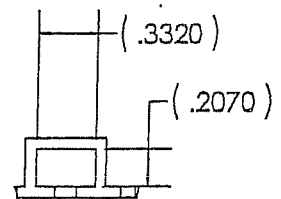
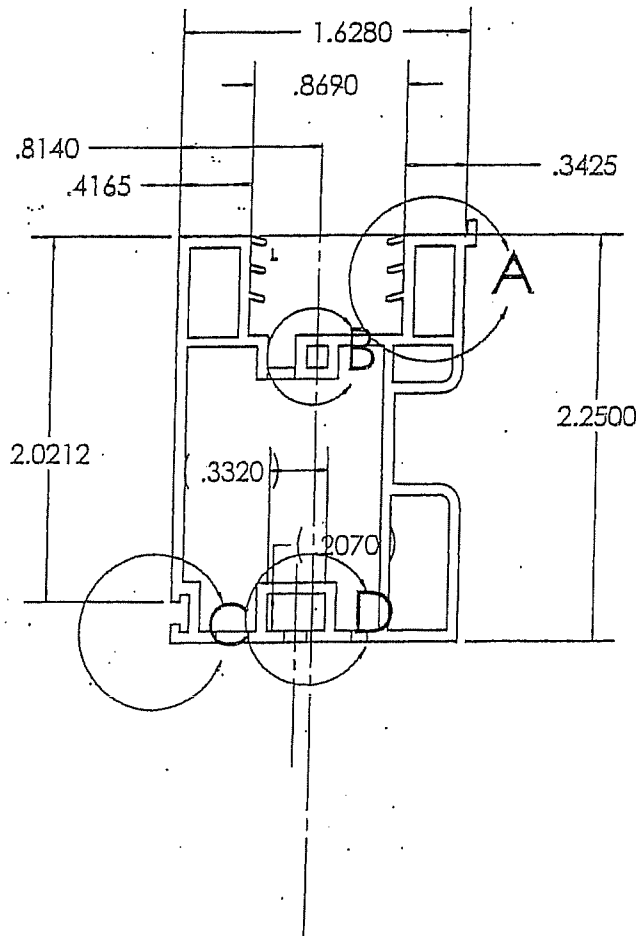


DETAIL B
SCALE 1 : 1

DETAIL C
SCALE 1 : 1



DETAIL A
SCALE 1 : 1



DETAIL D
SCALE 1 : 1

MGM INDUSTRIES
287 FREEHILL RD
HENDERSONVILLE, TN
37075

DESCRIPTION:
Bottom sash
Bottom Rail

DATE
08/11/00

ALL RADI TO BE 0.015.
ALL WALL THK TO BE
0.0625 UNLESS
OTHERWISE SPECIFIED.
ALL INTERNAL RADI .052

DWG. NO.
V-8002

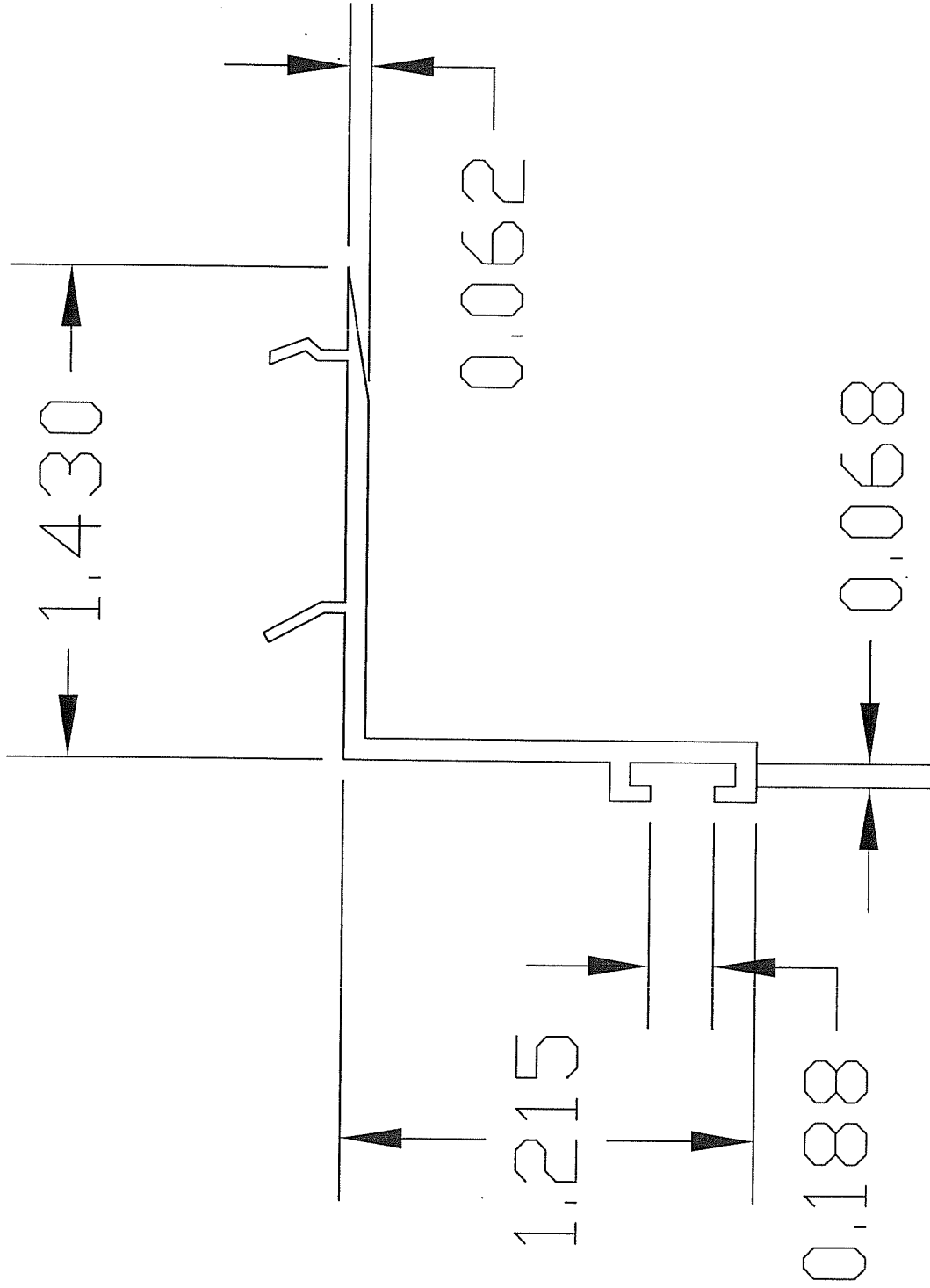
REV.
4

AREA .7808

WT/FT .4863

BY: ABG

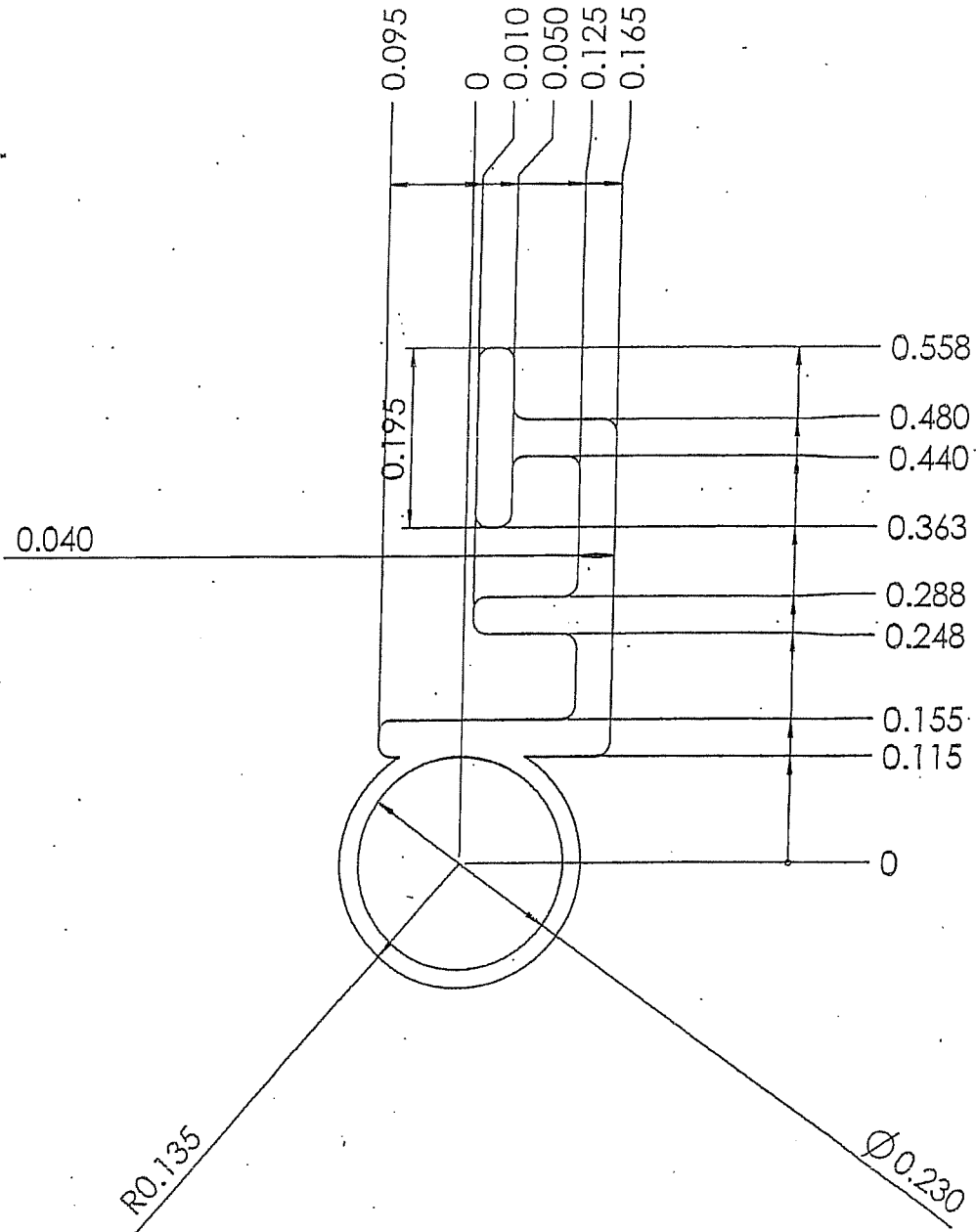
TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED.
NCTL-110-10898-01
TEST COMPLETE: 08/30/07



TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED. NCTL-110-10898-01 TEST COMPLETE: 08/30/07

REVISIONS

REV.	DESCRIPTION	DATE



AGM INDUSTRIES
 287 FREEHILL ROAD
 HENDERSONVILLE, TN
 37075
 ph 615-824-6572
 fax 615-822-6581

DESCRIPTION:

Bulb Seal

ALL RADI TO BE 0.015
 ALL WALL THK TO BE
 0.040 UNLESS
 OTHERWISE SPECIFIED
 INTERNAL WALLS 0.050

DWG. NO.
 V-391

REV.

WEIGHT

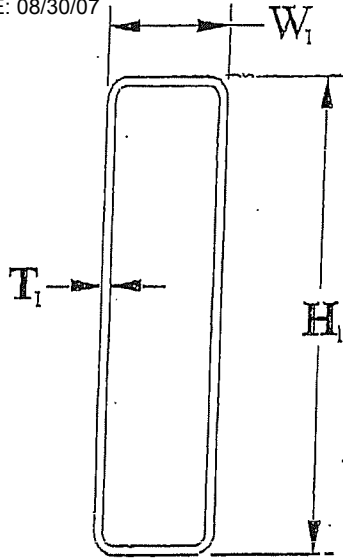
AREA

BY: ABG

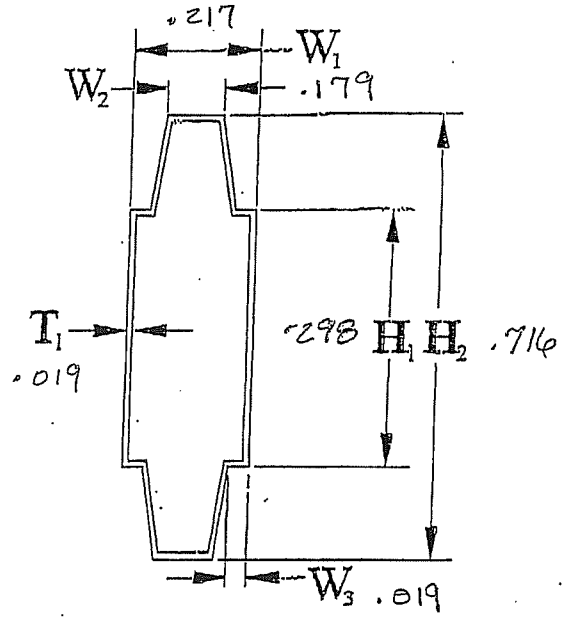
DATE 12/06/02

DO NOT SCALE DRAWING

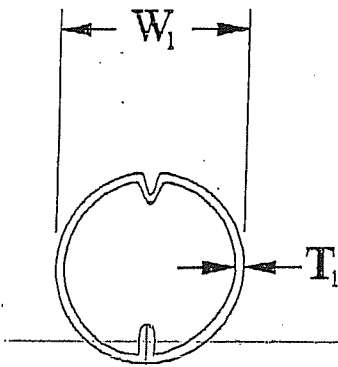
7006/9006
 TEST SPECIMEN COMPLIES
 WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 NCTL-110-10898-01
 TEST COMPLETE: 08/30/07



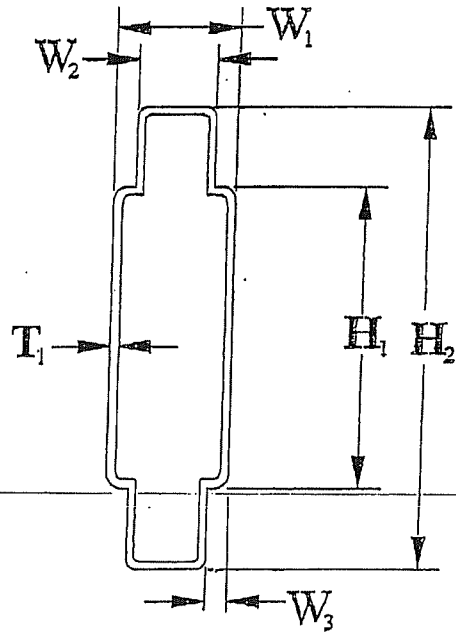
Rectangular



Decorative



Pencil



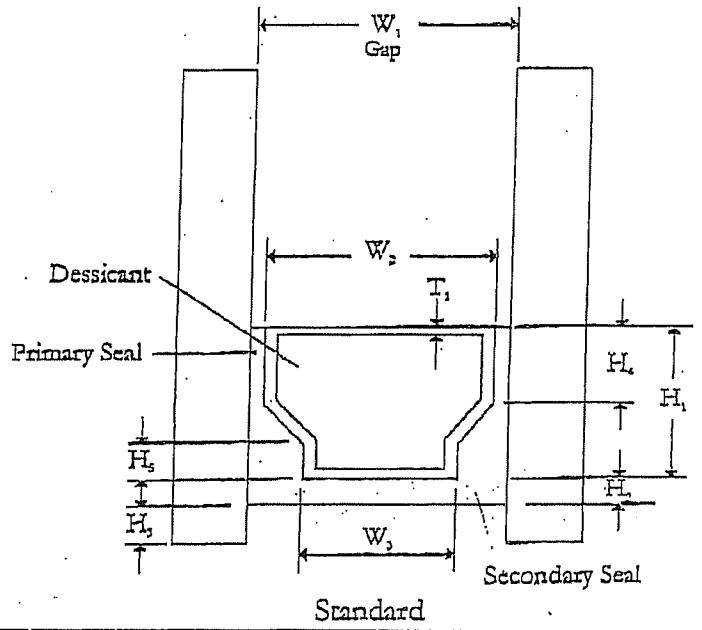
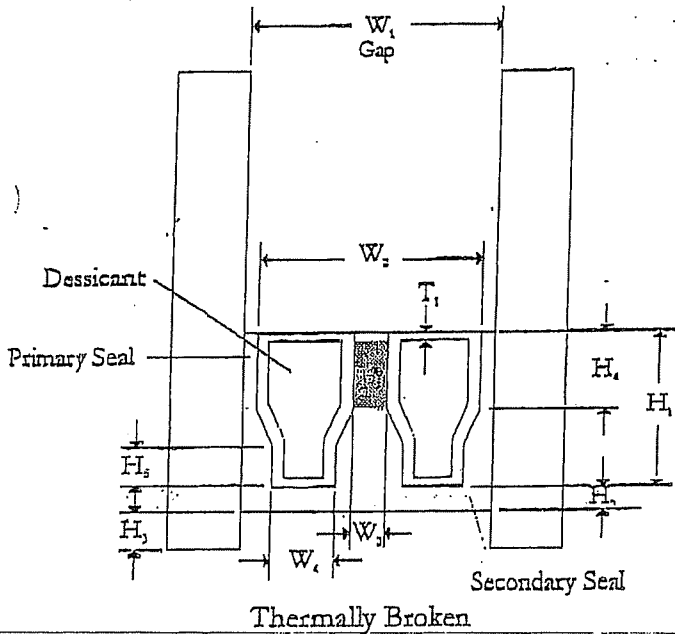
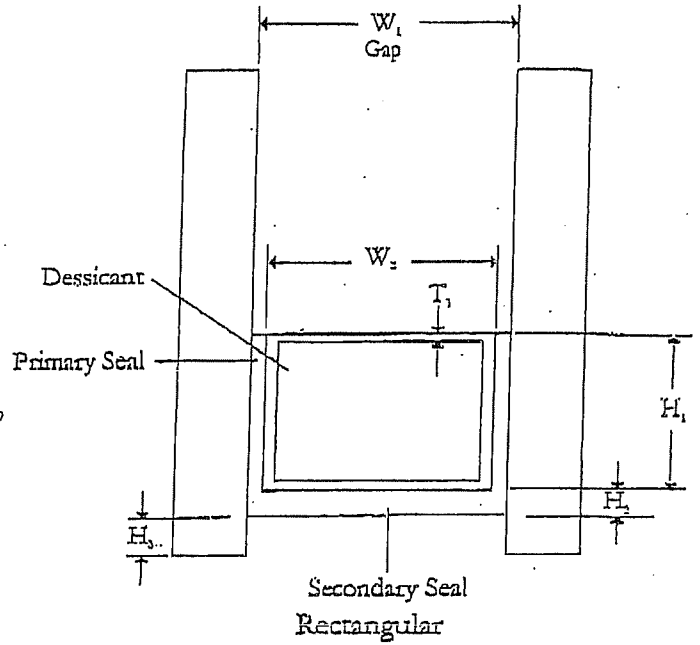
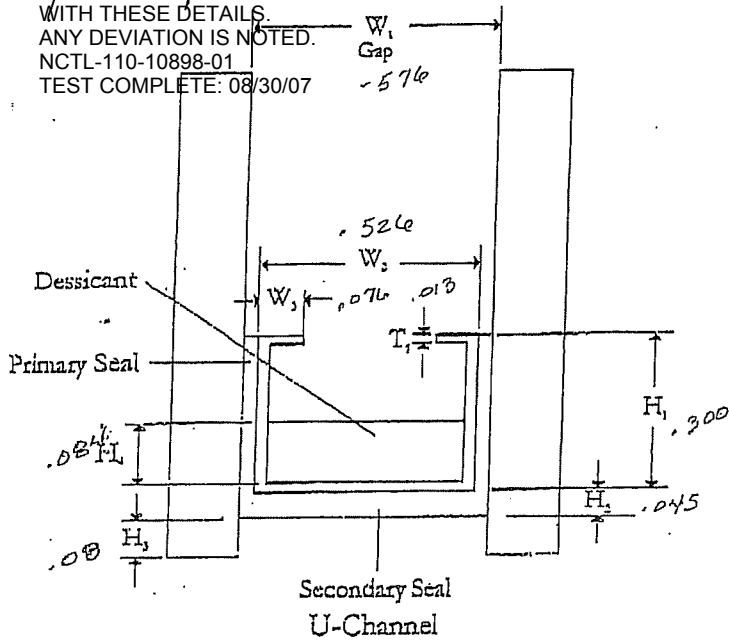
Decorative

Divider Dimensions - Fill dimensions where applicable - Please fill out a divider sheet for each divider size used.

Dimensions			Material		
<input type="checkbox"/> W_1 <u>.217</u> "	<input type="checkbox"/> W_2 <u>.179</u> "	<input type="checkbox"/> W_3 <u>.019</u> "	<input checked="" type="checkbox"/> Aluminum	<input type="checkbox"/> Steel - Galvanized	<input type="checkbox"/> Other _____
<input type="checkbox"/> H_1 <u>.298</u> "	<input type="checkbox"/> H_2 <u>.716</u> "	<input type="checkbox"/> T_1 <u>.019</u> "	<input type="checkbox"/> Steel - Mild	<input type="checkbox"/> Steel - Stainless	

7006/2006/4006

TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED. NCTL-110-10898-01 TEST COMPLETE: 08/30/07



Spacer Dimensions - Fill dimensions where applicable - Please fill out a spacer sheet for each spacer used whether spacer type or size.

Gap	Primary Seal	Secondary Seal	Material	Fill
<input type="checkbox"/> W ₁ <u>.576</u> "	<input type="checkbox"/> Butyl	<input type="checkbox"/> Butyl	<input type="checkbox"/> Aluminum	<input checked="" type="checkbox"/> Dessicant
<input type="checkbox"/> W ₂ <u>.524</u> "	<input type="checkbox"/> PIB	<input type="checkbox"/> PIB	<input type="checkbox"/> Steel - Mild	<input type="checkbox"/> Air
<input type="checkbox"/> W ₃ <u>.076</u> "	<input type="checkbox"/> Polysulphide	<input type="checkbox"/> Polysulphide	<input type="checkbox"/> Steel - Stainless	<input type="checkbox"/> Other _____
<input type="checkbox"/> W ₄ _____ "	<input type="checkbox"/> Silicone	<input type="checkbox"/> Silicone	<input type="checkbox"/> Steel - Galvanized	
<input type="checkbox"/> H ₁ <u>.300</u> "	<input type="checkbox"/> Urethane	<input type="checkbox"/> Urethane	<input type="checkbox"/> Vinyl	
<input type="checkbox"/> H ₂ <u>.045</u> "	<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> Foam _____	
<input type="checkbox"/> H ₃ <u>.08</u> "	<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____	
<input type="checkbox"/> H ₄ <u>.004</u> "				
<input type="checkbox"/> H ₅ _____ "				
<input type="checkbox"/> T ₁ <u>.013</u> "				

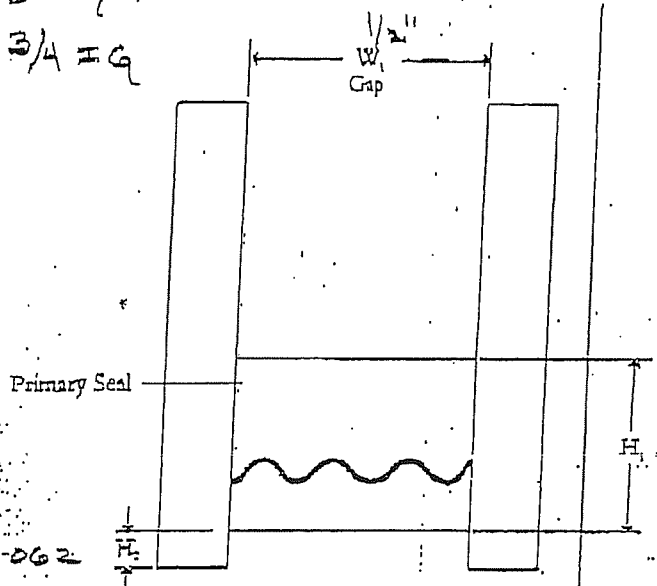
TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED.

NCFL-110-10898-01
TEST COMPLETE: 08/30/07

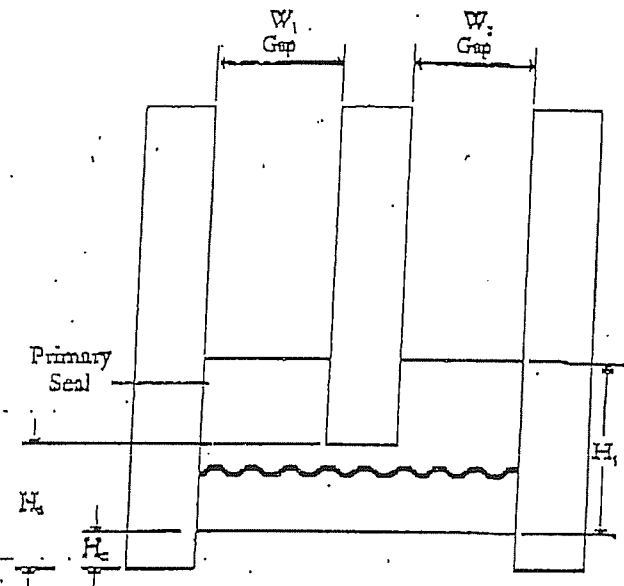
DSB / DSB CORR

DSB / TI 2ND SURFACE

3/4 IG



Reinforced Butyl
SWIGGLE STRIP



Reinforced Butyl

CLIPPING OPTIONS EACH

4006DH - 4006 PALS

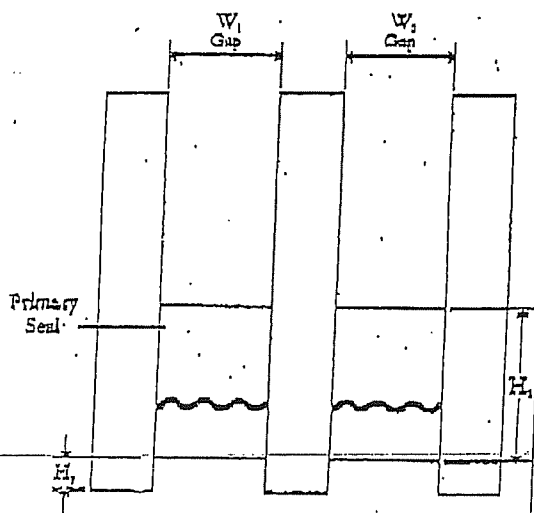
7006DH - 7006 PALS - 7006 PA/TR

8006DH - 8006 PALS - 8006 PA/TR

6000SH - 6000 HS - 6000 PA/TR

8005FD

4700 CASMENT - 4700 PA/TR



Reinforced Butyl

Spacer Dimensions - Fill dimensions where applicable - Please fill out a spacer sheet for each spacer used whether spacer type or size:

Gap	Primary Seal	Secondary Seal	Material	Fill
<input type="checkbox"/> W ₁ 1/2"	<input type="checkbox"/> Butyl	<input type="checkbox"/> Butyl	<input type="checkbox"/> Aluminum	<input type="checkbox"/> Desiccant
<input type="checkbox"/> W ₂ _____"	<input type="checkbox"/> PIB	<input type="checkbox"/> PIB	<input type="checkbox"/> Steel - Mild	<input type="checkbox"/> Air
<input type="checkbox"/> W ₃ _____"	<input type="checkbox"/> Polysulphide	<input type="checkbox"/> Polysulphide	<input type="checkbox"/> Steel - Stainless	<input type="checkbox"/> Other _____
<input type="checkbox"/> W ₄ _____"	<input type="checkbox"/> Silicone	<input type="checkbox"/> Silicone	<input type="checkbox"/> Steel - Galvanized	
<input type="checkbox"/> H ₁ 1/4"	<input type="checkbox"/> Urethane	<input type="checkbox"/> Urethane	<input type="checkbox"/> Vinyl	
<input type="checkbox"/> H ₂ 1/2"	<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> Foam _____	
<input type="checkbox"/> H ₃ _____"	<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____	
<input type="checkbox"/> H ₄ _____"				
<input type="checkbox"/> H ₅ _____"				