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

ANSI/NFRC 400-2017

AIR LEAKAGE PERFORMANCE TEST REPORT SUMMARY

RENDERED TO:

KOMMERLING USA, INC.
3415 Stanwood blvd, Building 1
Hunstville, AL 35811

PRODUCT TYPE: Dual Action Swing Door

SERIES/MODEL: **"**76MD Vinyl Balcony Door"

Title	Summary of Results
Total Air Leakage	2.63 L/sec (5.57 scfm)
Extraneous (Tare) Air Leakage	2.02 L/sec (4.28 scfm)
Net Specimen Air Leakage	0.61 L/sec (1.29 scfm)
Air Leakage Rate	0.3 L/(sec• m^2) (0.06 scfm/ft^2) Measured

Test Completed: 11/21/18

Reference must be made to NCTL Report Number NCTL-110-21228-2 dated 03/06/19 for complete test sample description and data.

For National Certified Testing Laboratories

Performed By:

DIGITAL SIGNATURE

Justin L. Bupp
Laboratory Manager

Reviewed By:

Raymond W. Lamb, PE
Person In Responsible Charge

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Report Number NCTL-110-21228-2

Report Date 03/06/19

Report To Kommerling USA, Inc.
3415 Stanwood blvd, Building 1
Hunstville, AL 35811

Date Testing Started 11/21/18
Date Testing Completed 11/21/18

Specification ANSI/ NFRC 400-2017 "Procedure for Determining Fenestration Product Air Leakage"

Description of Sample Tested

Note: All dimensions are in the order (Width x Height x Thickness) unless otherwise noted.

Model/ Series "76MD Vinyl Balcony Door"

Configuration Dual Action Swing Door

Frame Size Overall
960 mm x 2089 mm (37.813" x 82.25") (Non-Standard Size)

Leaf Size 884 mm x 2016 mm (34.813" x 79.375")

Viewing Area 730 mm x 1861 mm (28.75" x 73.25")

Frame and Vent Type Extruded vinyl

Joint Construction Frame & Vent Leaf
Mitered, welded

Glazing Components
Overall: 31.75 mm (1.250") Nominal
Glass Thickness: (1) Lite of 6 mm (0.225") nominal tempered glass to the exterior and (1) lite of laminated glass to the interior
Coating: A PPG "Solarban 70XL Starphire" sputter-type low emissivity coating (e = 0.018 per client) was applied to glazing surface no. 2.
Laminated Glass: (2)Lites of 5 mm (0.193") nominal annealed glass separated by a 2.29 mm (0.090") PVB interlayer.

Spacer Type/ Size 13.94 mm (0.549") Desiccant filled stainless steel spacer (SS-D)
Fill: Argon 90% single probe per client

Glazing System Interior glazed against triple fin dual-durometer and silicone with a snap-in triple fin dual-durometer rigid vinyl glazing bead sealed to interior lite with silicone.

Weatherstrip
Type: (1) Strip single-leaf vinyl
Location: Leaf perimeter and frame perimeter

Type: (1) Strip single-leaf bulb-vinyl
Location: Frame perimeter

Operating Hardware

Locks	
Type	Single handle with (9)-point integrated lock system
Location	1003 mm (39.5") From the bottom of the lock stile with (2) points at the top rail, (2) lock points at the lock stile, (2) lock points at the bottom rail and (3) lock points at the hinge stile.
Keeper	
Type	Metal
Location	Frame perimeter at the lock locations.
Hinge Hardware	
Type	Dual action hinge
Location	Top of hinge jamb/ hinge stile
Type	Pin-type
Location	Bottom of hinge jamb/ hinge stile

Auxiliary

Type	Rigid vinyl spacer
Location	(1) At the head and sill and (2) at the lock jamb

Reinforcement

Type	Galvanized steel U-shaped
Thickness	2.01 mm (0.079")
Location	Frame perimeter and leaf perimeter secured with evenly spaced screws
Type	Galvanized steel flat bar
Thickness	2.01 mm (0.079")
Location	Glazing track perimeter at the lead secured with evenly spaced screws

Weep Description

Size	23.83 mm (0.938") Wide by 6.35 mm (0.25") high
Location	82.55 mm (3.25") From each end of the interior head and sill track
Size	24.56 mm (0.967") Wide by 4.78 mm (0.188") high
Location	197 mm (7.75") From each end of the sill exterior
Size	23.83 mm (0.938") Wide by 4.78 mm (0.188") high
Location	203 mm (8") From each end of the rails draining the glazing

Interior/ Exterior Surface Finish	White vinyl (PVC)
Sealant	No apparent sealant applied
Insect Screen	No screen employed
Nail Fin	Not applicable/ No nail fin

Test Results - ANSI/NFRC 400

Paragraph	Test
4G	Operating Force NAFS

Initiate Motion (report only)	=	27 N	(6 lbf)
Maintain Motion - Opening	=	27 N	(6 lbf)
Maintain Motion - Closing	=	27 N	(6 lbf)

NOTE: The results above represent the maximum force among all sash tested.

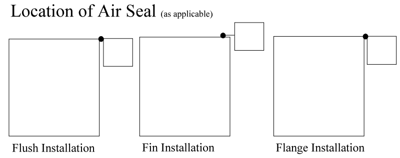
Paragraph	Test
4	Air Leakage Resistance ASTM E283-04(12)

Air Infiltration at 75 Pa (1.6 psf)

Air Temperature	=	21.3 ºC	(70.4º F)
Atmospheric Pressure	=	765.05 mm Hg	(30.12 "Hg)
Relative Humidity	=	39 %	
Total Air Leakage	=	2.63 L/sec	(5.57 scfm)
Extraneous (Tare) Air Leakage	=	2.02 L/sec	(4.28 scfm)
Net Specimen Air Leakage	=	0.61 L/sec	(1.29 scfm)
Air Leakage Rate	=	0.3 L/(sec• m²)	
	=	(0.06 scfm/ft²)	measured

The listed results were secured by using the designated test methods and were corrected to standard atmospheric conditions as required. Any modifications necessary to achieve the listed results are listed in Appendix A to this report. The airflow measuring equipment was calibrated using precision fixed orifice air flow plates attached to a 48" x 72" calibration buck. The most recent calibration of the equipment was completed within (6) months of the test date listed on the report and is verified on a monthly basis.

Location of Air Seal (as applicable)



This test report was prepared by National Certified Testing Laboratories (NCTL), for the exclusive use of the above named client. The results are for the particular specimen tested and do not imply the quality of similar or identical products manufactured or installed from specifications identical to the tested product. The test specimen was supplied to NCTL by the above named client. NCTL is a testing lab and assumes that all information provided by the client is accurate and does not guarantee or warranty any product tested or installed. All tests were conducted in compliance with the ANSI/NFRC 400 and ASTM E283 requirements. This report may not be reproduced, except in full, without the written consent of NCTL.

Air Infiltration values included in this report are not meant to be used for NFRC labeling purposes. Official NFRC Rating values may be obtained by submitting this report to an NFRC Licensed Inspection Agency for certification purposes. Only those options identified on a valid Certificate of Authorization (CA) are to be used for labeling purposes. An estimate of the experimental uncertainty for these results is available upon request.

Detailed drawings were available for laboratory records and 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. This report does not constitute certification or approval of the product, which may only be granted by a certification program validator or recognized approval entity. All tests were conducted in compliance with the referenced specifications.

National Certified Testing Laboratories

Performed By:

DIGITAL SIGNATURE

Justin L. Bupp
Laboratory Manager

Reviewed By:

Raymond W. Lamb, PE
Person In Responsible Charge

JLB/ mh

APPENDIX A

Section 1:

Modifications to the Test Specimen to Achieve the Listed Results

Any modifications (if applicable) are included in the test specimen description listed in this report.

Section 2:

Component Drawings, with Applicable Part Numbers, Manufacturing and Modeling Details, were Reviewed (as submitted) for Product Verification
(Reference: NCTL-110-21228-2)

See Attached Documentation;
any deviations noted.

Note: The above referenced component drawings along with representative sections of the test specimen will be retained per procedure by NCTL. This testing facility assumes that all information provided by the client is accurate.

Section 3:

Identification	Date	Page & Revision
Original Issue	03/06/19	Not Applicable

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED

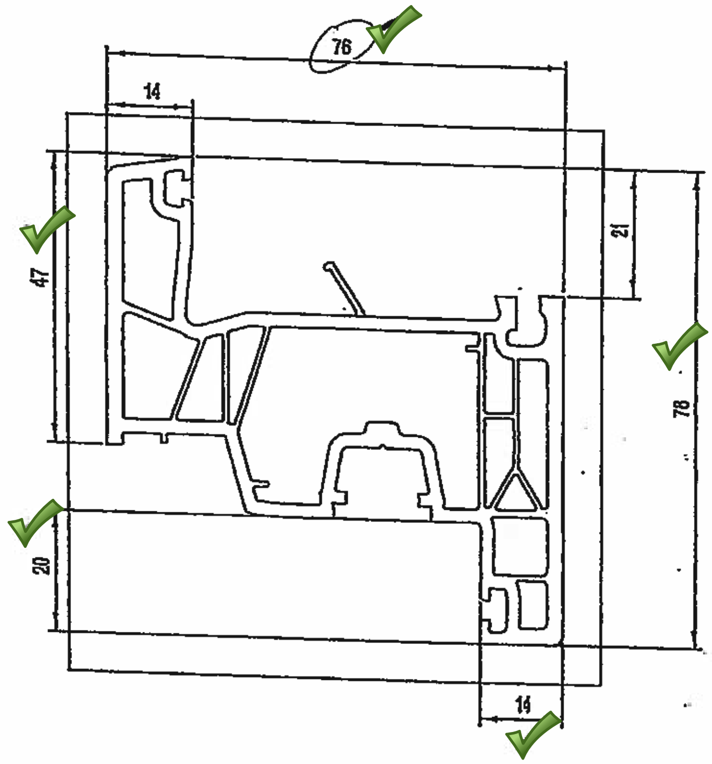
QTY.	PART NO.	DESCRIPTION	MANUFACTURER
1	76171	MAIN FRAME, RIGID VINYL	PROFINE
2	76271	SASH, RIGID VINYL	PROFINE
3	2435_2	1-1/4" I.G. LAMINATED GLAZING BEAD, RIGID VINYL	PROFINE
4	PURCHASE	FRAME/ GLAZING GASKET, EPDM RUBBER 70 DUR	PURCHASE
5	PURCHASE	INT. FRAME GASKET, EPDM RUBBER 70 DUR	PURCHASE
6	PURCHASE	SASH GASKET, EPDM RUBBER 70 DUR	PURCHASE
~~7~~	~~V310~~	~~1.00" X 1.03" X 0.079" FRAME REINF., GALV. STEEL~~	~~PROFINE~~
8	V308	1.00" X 1.035" X 0.079" SASH REINF., GALV. STEEL	PROFINE
9	V280	1.08" X 0.079" SASH GLAZING REINF., GALV. STEEL	PROFINE
~~10~~	~~6041~~	~~1.00" X 7.00" X 0.059" GALV. STL. ANCHOR STRAP~~	~~PROFINE~~
~~11~~	~~PURCHASE~~	~~ALUMINUM GLASS SPACER~~	~~SWISS~~
~~12~~	~~PURCHASE~~	~~#14 ALLEN HEAD WOOD SCREW~~	~~PURCHASE~~
~~13~~	~~PURCHASE~~	~~#14 PH WOOD SCREW~~	~~PURCHASE~~
~~14~~	~~PURCHASE~~	~~1/4" DIAM. I.T.W. MASONRY ANCHOR~~	~~PURCHASE~~
~~15~~	~~PURCHASE~~	~~GLAZING SEALANT, SIKAFLEX 552~~	~~SIKA CORP.~~
~~16~~	~~PURCHASE~~	~~SEE GLAZING DETAIL~~	~~———~~

TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED.
REPORT NO. 21228-2
TEST DATE: 11/21/18

KOMMERLING USA, INC.
3402 STANWOOD BOULEVARD
HUNTSVILLE, AL 35811

SERIES 76 MD VINYL BALCONY DOOR
L.M. IMPACT
B.O.M. AND GLAZING DETAILS

DRAWN: JRM	DWG NO. L17-0034		REV –
SCALE NTS	DATE 12/21/2017	SHEET 3 OF 3	



TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED.
REPORT NO. 21228-2
TEST DATE: 11/21/18

Status

Blatt 1 von 1

3D NX Modell = Mastermodell

Vertriebsgebiet

Marke profine

System MD KBE76, KOEMMERLING76, TROCAL76

001 | 15.04.15 | Andrea Berberich

Änd.-Nr. | Änderungsbeschreibung | Datum | Geändert von

Bauteilbenennung: Fluegelprofil 78mm

profine

	Erstellt	Geprüft
Datum	15.04.15	16.04.15
Name	Andrea Berberich	Dennis Weigel

Ersatz für:

Ersetzt durch:

Teilenr. 76271

Maßstab 1:1

Ident. 00191089

Allg.-Tol.

Wanddicke

Fertigmaße:

Werkstoff

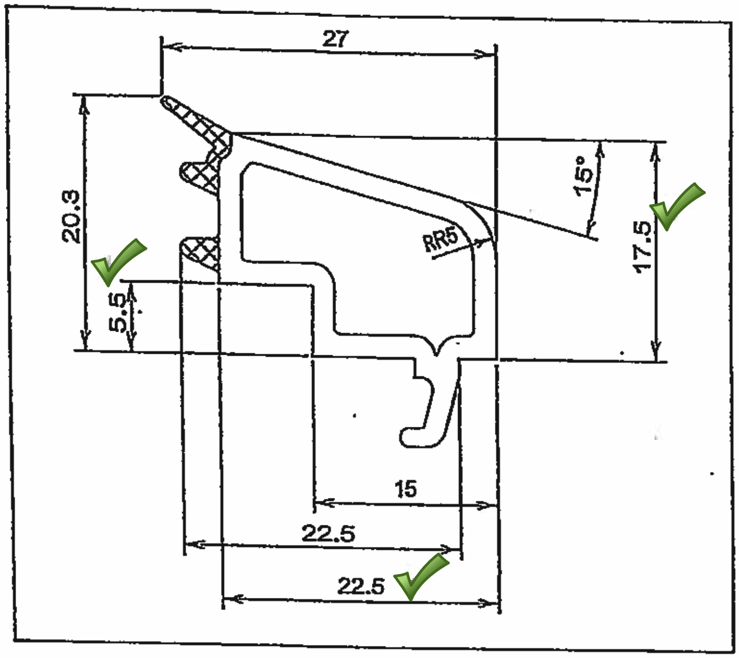
Zeichnungstyp Kundenzeichnung

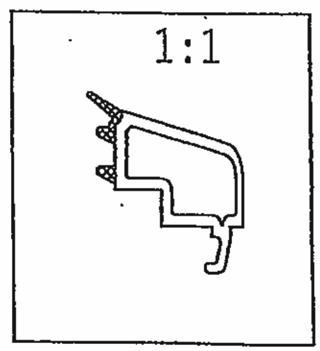
Prod.-Gruppe Fluegel

WZ-Nr. Kunde

Ez 004

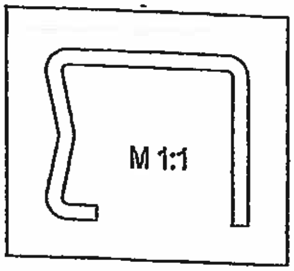
A4



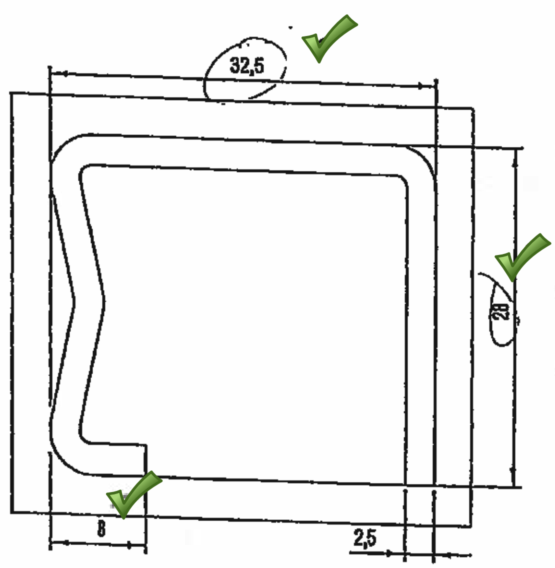


TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED.
REPORT NO. 21228-2
TEST DATE: 11/21/18

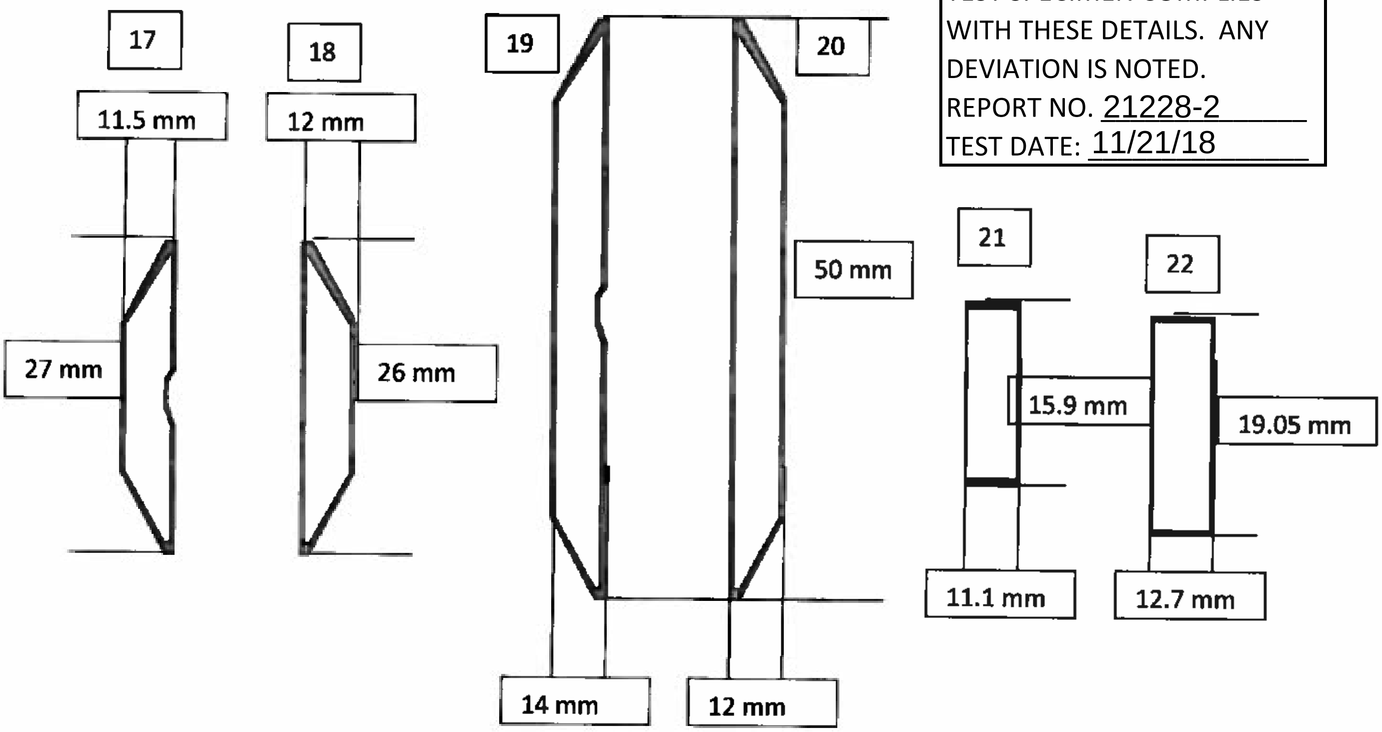
Status		3D NX Modell = Mastermodell	profine	Maßstab 2:1	Index 00024583
Blatt	von			Allg.-Tol. Nach Werksnorm	Wandstärke
Vertriebsgebiet			Erstellt	Geprüft	Fertigmaße:	Werkstoff:
			Datum 13.02.14	18.02.14	Zeichnungstyp Kundenzeichnung	
Marke KOEMMERLING System			Name Irene Baer	Bernd Moller		
009	Einzelheit Z geaendert	18.02.14	Irene Baer	Ersatz für:	Prod.-Gruppe Glasleisten	
Änd.-Nr.	Änderungsbeschreibung	Datum	Geändert von	Ersetzt durch:	WZ-Nr. - Kunde	
Bauteilbenennung: Glasleiste				Teilenr. 2435_2	Rev 009	



TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED.
REPORT NO. 21228-2
TEST DATE: 11/21/18



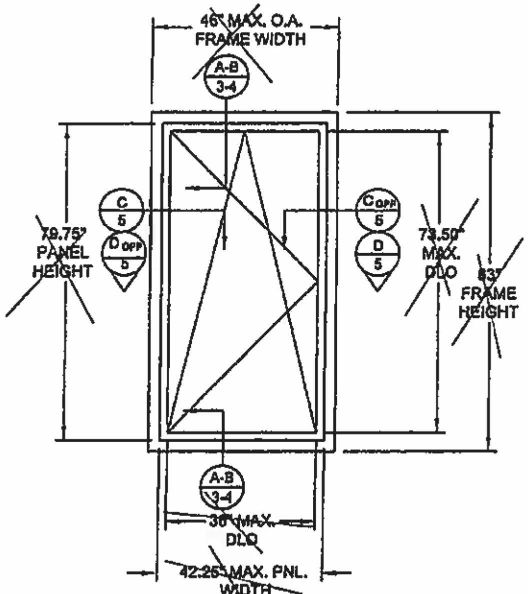
Status	3D NX Modell = Mastermodell	profine	Maßstab 2:1
Blatt 1 von 1			Mat.-Nr. 00199164
Vertriebsgebiet			Abg.-Tel. / Wandstärke
Marke profine	System MD KBE76, KOEMMERLING76, TROCAL76 / AD KBE76, KOEMMERLING76, TROCAL76	Erstellt: Datum 25.04.13, Name Andreas Berbesch / Geprüft: 10.07.13, Alexander Kast	Fertigmaße: / Werkstoff:
000	10.07.13 Andreas Berbesch	Ersatz für:	Zeichnungstyp Kundenzeichnung
Änd.-Nr. Änderungsbeschreibung	Datum / Geändert von	Ersetzt durch:	Prod.-Gruppe Verstaerkungen
Bauteilbenennung: Stahlverstaerkung			WZ-Nr. / Kunde
		Teilenr. V308	Ix 000



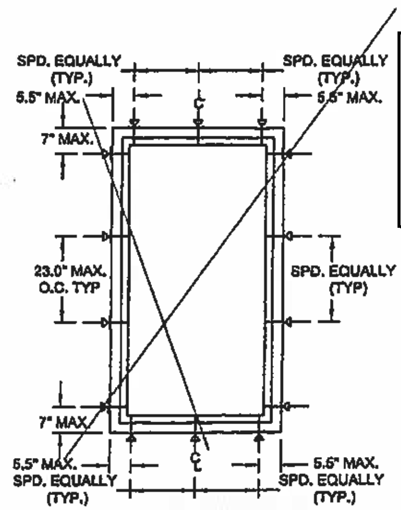
TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED.
REPORT NO. 21228-2
TEST DATE: 11/21/18

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED

TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED.
REPORT NO. 21228-2
TEST DATE: 11/21/18



SERIES 76 MD VINYL BALCONY DOOR
ELEVATION VIEW
INTERIOR VIEW



ANCHOR LAYOUT
STRAP ANCHOR INSTALLATION

INSTALLATION STRAP

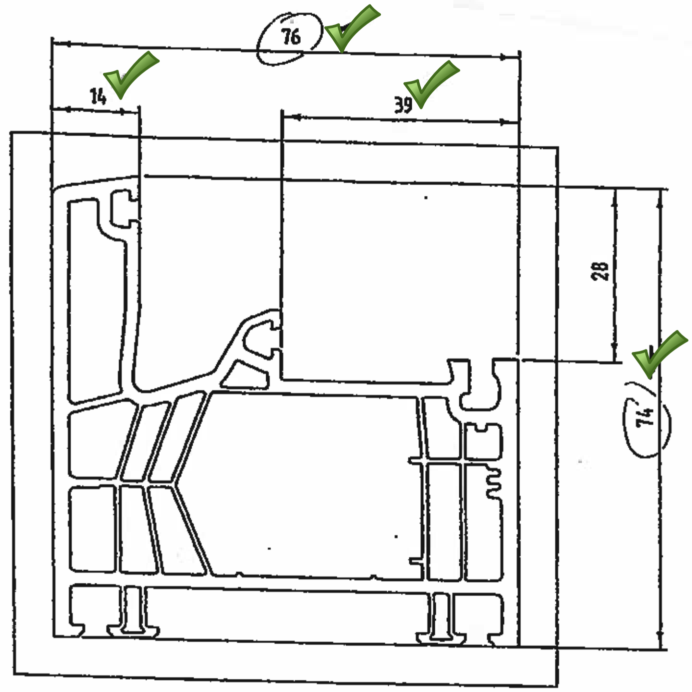
ANCHORAGE INSTALLATION REQUIREMENTS TO MEET DESIGN PRESSURE OF +/-65 PSF

DESIGN PRESSURE RATING (PSF)		
L.M. IMPACT RATING		
MAX. OVERALL TESTED FRAME SIZE (IN)	MAX. DESIGN PRESSURE (PSF)	QUALIFIED CONFIGURATION
45.27" X 82.75"	+/- 65.0	X
SEE GLAZING DETAIL ON SHT. 7		

KOMMERLING USA, INC.
3402 STANWOOD BOULEVARD
HUNTSVILLE, AL 35811

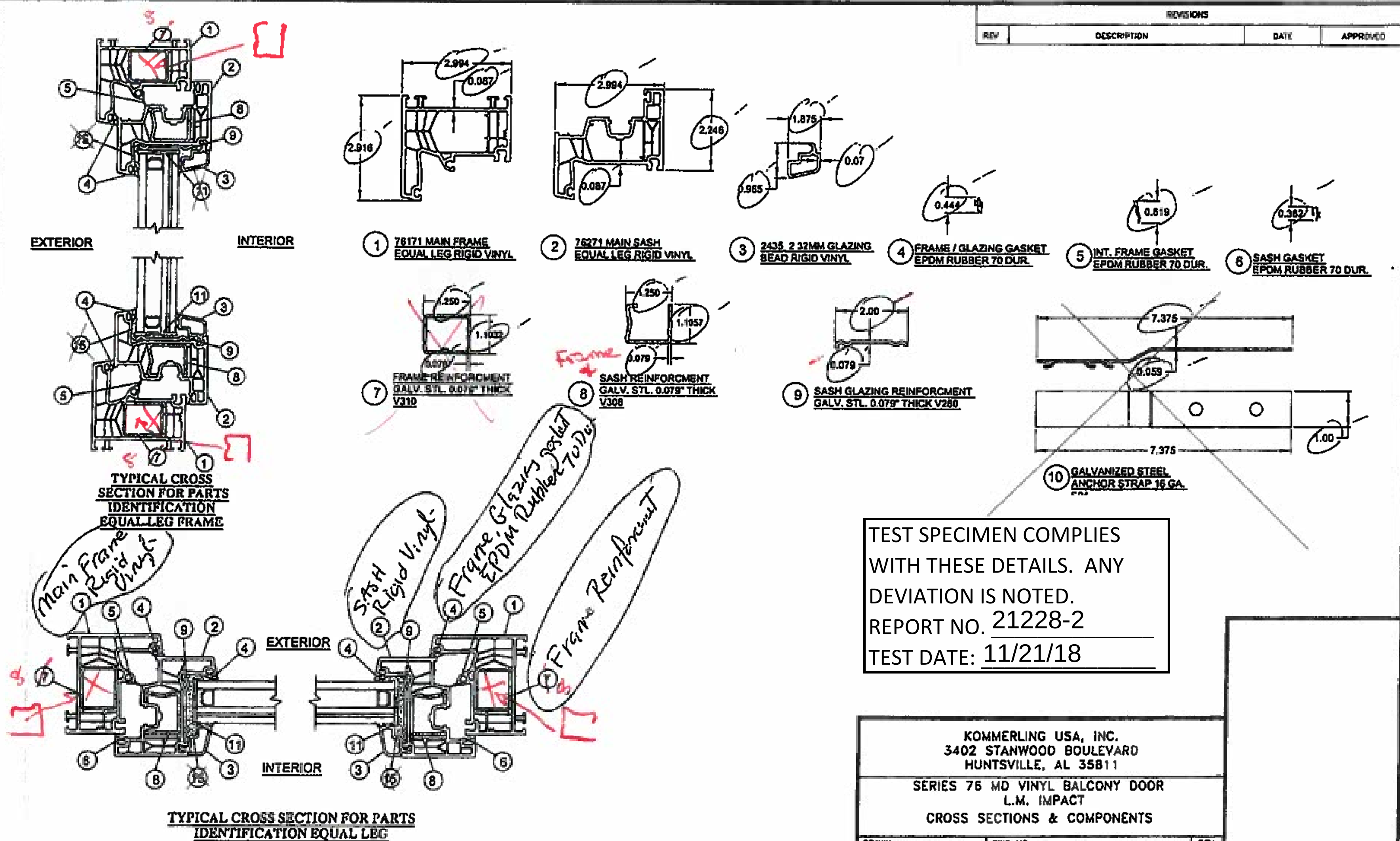
SERIES 76 MD VINYL BALCONY DOOR
L.M. IMPACT
ANCHOR ELEVATION & LAYOUTS

DRAWN: JRM	DWG NO. L17-0034	REV -
SCALE NTS	DATE 12/21/2017	SHEET 1 OF 3



TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED.
REPORT NO. 21228-2
TEST DATE: 11/21/18

Status	3D NX Modell = Mastermodell	profine	Maßstab 1:1	Werkz. 00191074
Blatt 1 von 1			Allg.-Tol.	Wahlliste
Vertriebsgebiet			Fertigmaße:	Vorlage:
Marke profine	System MD KBE 76, KOEMMERLING 76, TROCAL76	Datum: Erstellt 10.08.2016 / Geprüft 10.08.2016	Zeichnungstyp Kundenzeichnung	
004	10.08.2016 Andrea Berberich	Name: Andrea Berberich / Dennis Weigel	Prod.-Gruppe Rahmen	
Änd.-Nr. Änderungsbeschreibung	Datum / Geändert von	Ersatz für: / Ersetzt durch:	HZ-Nr. Kunde	
Bauteilbenennung: Blendrahmen 74mm		Teilnr. 76171		Rev 004



REV	DESCRIPTION	DATE	APPROVED

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

REPORT NO. 21228-2

TEST DATE: 11/21/18

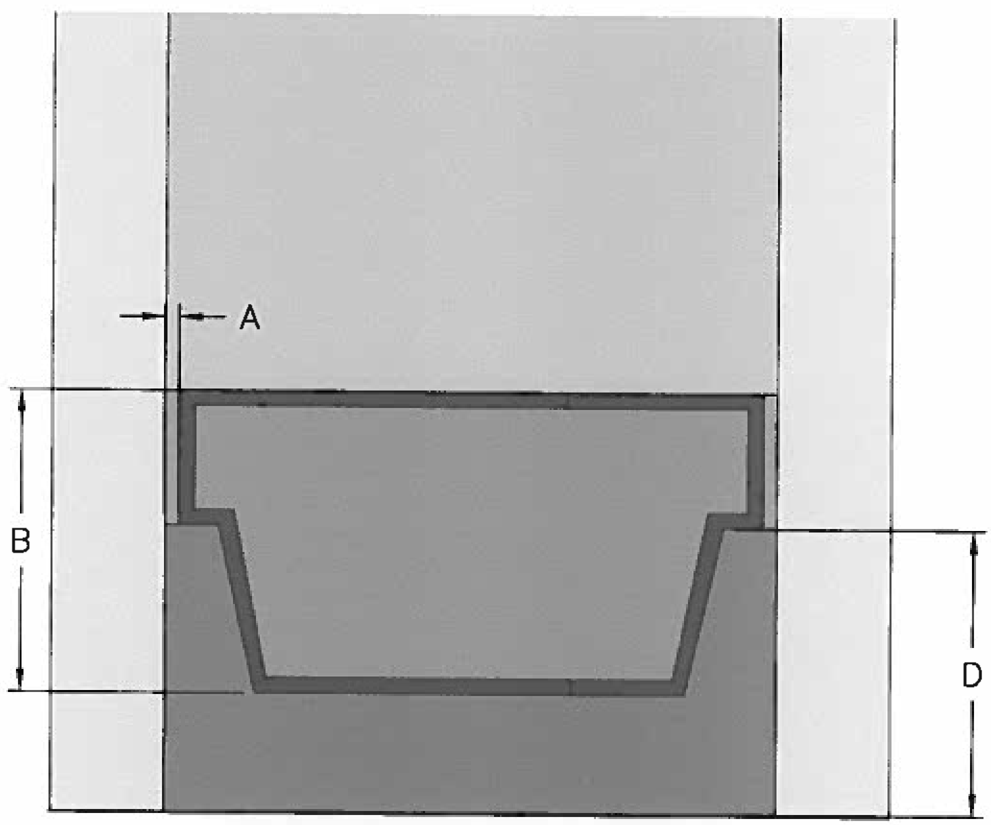
KOMMERLING USA, INC.
3402 STANWOOD BOULEVARD
HUNTSVILLE, AL 35811

SERIES 76 MD VINYL BALCONY DOOR
L.M. IMPACT
CROSS SECTIONS & COMPONENTS

DRAWN: JRM	DWG NO. L17-0034	REV –
SCALE NTS	DATE 12/21/2017	SHEET 2 OF 3

TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED.
REPORT NO. 21228-2
TEST DATE: 11/21/18

MANUFACTURER: ALL METAL	SPACER: TRIMLINE (A1-D)
SHEET 1/1 · ALY 00	GAS & PERCENTAGE: ARGON:90%
GAP WIDTHS: 0.549"	



SPACER MATERIAL: ALUMINUM ALLOYS (ANODIZED)

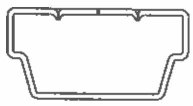
PRIMARY SEALANT: POLYISOBUTYLENE (PIB)

SECONDARY SEALANT: BUTYL RUBBER (ISOBUTENE, SOLID / HOT METAL)

A) THICKNESS OF SEALANT BETWEEN GLASS : .015"

B) SPACER HEIGHT: .315"

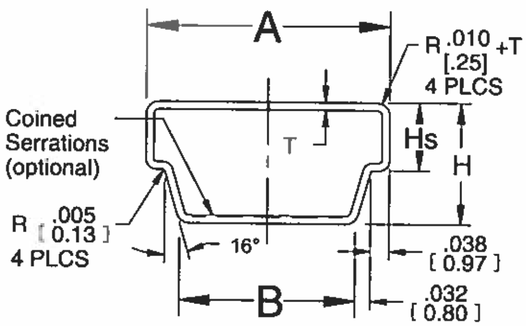
D)SECONDARY SEALANT HEIGHT: .2998"



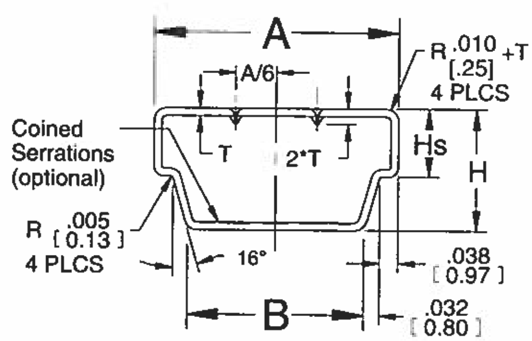
TLP250

ALLMETAL®

Trimline LP250 Air Spacer



Zippered
(all sizes)



Perforated
(1/4" [6.5mm] and wider)

Tolerance: All dimensions .005 [.13 mm] unless otherwise specified.

Material	H		Hs		T	
	IN	MM	IN	MM	IN	MM
.014" [.36mm] Anodized Aluminum	.246	6.25	.136	3.45	.014	.36
.016" [.41mm] Anodized Aluminum	.250	6.35	.140	3.56	.016	.41
.016" [.41mm] Mill Finish Aluminum	.250	6.35	.140	3.56	.016	.41

Notes:

1. Dimensions are in decimal inches; dimensions in [] brackets are in mm.
2. Available with serrations at no extra charge on inside of **Aluminum** spacer at location indicated above; **not** recommended for spacer to be used for bending.
3. Material tolerances can be found on Material Specifications Data page (ii).
4. Thermal properties can be found on Thermal Performance Data page (iii).

TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED.
REPORT NO. 21228-2
TEST DATE: 11/21/18

TLP250

ALLMETAL®

Trimline LP250 Air Spacer Specifications

Aluminum: Clear Anodized, Color-In™ Anodized & Mill Finish

Air Spacer Width Fractional	Decimal Equivalent	
	A	B
1/4	.250	.110
9/32	.281	.141
5/16	.313	.173
3/8	.375	.235
7/16	.438	.298
15/32	.469	.329
1/2	.500	.360
9/16	.563	.423
5/8	.625	.485
21/32	.656	.516
11/16	.688	.548
3/4	.750	.610

Air Spacer Width Millimeter	Decimal Equivalent	
	A	B
8	.315	.175
9.5	.374	.234
11	.433	.293
12	.472	.332
14.5	.571	.431
16	.630	.490
17.5	.689	.549

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TEST DATE: 11/21/18