

Report Number: ETC-02-817-11667.1

Test Start Date: 09/13/02

Test Finish Date: 05/20/03

Report Date: 5/22/03

Expiration Date: 5/22/07

Re-Issued Date: 7/30/03

Fenestration Structural Test Report

Rendered To:

Alumil USA Inc.
262 East 3rd St.
Mt. Vernon, NY 10553

Series/Model

M300 Falcon Sliding Glass Door

Description: The product is an Aluminum Sliding Glass Door (OX) with thermally broken frame and panels. The door was glazed with one-inch I.G. units consisting of 1/4 inch tempered glass. The frame size was 120 inches wide by 96 inches high by 5-3/4 inches deep. The panel sizes are 60 1/4 inches wide by 92-1/8 inches high by 2-3/4 inches deep.

Test Specification: ANSI/AAMA/NWDA 101/I.S.2

Summary of Results

Overall Design Pressure	40 psf
Maximum Operating Force (Breakaway/ in motion)	27/22 lbf
Air Leakage Rate	0.29 scfm/ft ²
Maximum Water Pressure Achieved	8.0 psf
Maximum Structural Pressure Achieved	60 psf
Forced Entry Resistance – ASTM F 842	Pass

Overall Product Rating**SGD-HC40 120 x 96**

Specifications: The test specimen was evaluated in accordance with ANSI/AAMA/NWDA 101/I.S.2 "Voluntary Specification For Aluminum, Vinyl and Wood Windows and Glass Doors", sections 1,2 and 4 only. All performance specifications in this standard shall be met for full compliance to the standard and for product certification, labeling or represented as conforming to this standard.

Referenced Test Reports: None

Note – The test data in any section below with an "RTR" comment have not been obtained from this specimen but from the Referenced Test Report with a specimen of the same or larger size and identical construction.

Design Pressure (DP) – The product tested herein has been first evaluated to the Gateway pressure in the referenced specification for the performance class rating achieved.

Gateway Performance Tests

Specification

<u>Paragraph</u>	<u>Title of Test</u>	<u>Results</u>	<u>Allowed</u>
2.1.2	<u>Air Infiltration – ASTM E283-91</u> Test Pressure – 6.24 psf	0.29 scfm/ft ²	0.3 scfm/ft ²
2.1.3	<u>Water Resistance – ASTM E547</u> 5 gal/hr-ft ² – 4 Test cycles – 24 Minutes Design Pressure - 40.0 psf Test Pressure – 6.00 psf	Pass	No Leakage
	<u>Water Resistance – ASTM E331</u> 5 gal/hr-ft ² – 15 minutes Design Pressure – 40.0 psf Test Pressure – 6.00 psf	Pass	No Leakage
2.1.4.1	<u>Uniform Load Deflection – ASTM E330</u> Design Pressure – 40.0 psf Test Pressure – Positive Load – 40.0 psf (100% x DP) Negative Load – 40.0 psf (100% x DP)	0.339 0.393	0.526 0.526
2.1.4.2	<u>Uniform Structural Load - ASTM E 330</u> Design Pressure - 40.0 psf Test Pressure - Positive Load – 60.0 psf (150% x DP) Negative Load – 60.0 psf (150% x DP)	0.055 in. 0.090 in.	0.368 in. 0.368 in.
2.1.8	<u>Forced Entry Resistance- ASTM F842</u> Grade 10 Tests: A 1-6 Lock Manipulation – Pre & Post Force Tests	Pass Pass	No Entry No Entry

Gateway Performance Tests – (con't)

2.2.19.5.1	<u>Operating Force- ASTM E2068</u>		
	Right Panel- Open/Close	22 / 17 lbf	25 lbf
	Right Panel-Breakaway	27 lbf	40 lbf
2.2.19.5.2	<u>Deglazing – ASTM E 987</u>		
	Panel		
	Left Stile – 70 lbf	1%	<100%
	Right Stile – 70 lbf	2%	<100%
	Top Rail – 50 lbf	0%	<100%
	Bottom Rail – 50 lbf	0%	<100%

Optional Performance Tests

The manufacturer specified herein has **successfully** achieved all the required criteria in section 2 of the referenced specification for the Gateway size of the achieved Performance Rating and has further **successfully** tested the product to higher performance levels as indicated below.

Design Pressure (DP) – The product tested herein has been additionally evaluated to the Design Pressure referenced below.

Specification

<u>Paragraph</u>	<u>Title of Test</u>	<u>Results</u>	<u>Allowed</u>
4.3	<u>Water Resistance - ASTM E 547</u>		
	5 gal/hr-ft ² – 4 Test cycles – 24 Minutes		
	Design Pressure - 50 psf		
	Test Pressure – 8.0 psf	Pass	No Leakage
	<u>Water Resistance – ASTM E 331</u>		
	5 gal/hr-ft ² – 15 Test cycles – 24 Minutes		
	Design Pressure - 50 psf		
	Test Pressure – 8.0 psf	Pass	No Leakage

Conditions, Terms, and General Notes Regarding These Tests

The product tested "**Has Been**" compared to the detailed drawings, bill of materials and fabrication information supplied by the client so named herein. Our analysis, which includes dimensional and component description comparisons, indicate the tested product and engineering information supplied by the client "**Are Equivalent**". See **Appendix A**. The report and representative samples will be retained for four years from the date of initial test.

These test results were obtained by employing all requirements of the designated test methods with no deviations. The test results and specimen supplied for testing are in compliance with the referenced specifications.

The test results are specific to the product tested by this laboratory and of the sample supplied by the client named herein, and they relate to no other product either manufactured by the client, a Fabricator of the client or of installed field performance.

This report does not constitute an AAMA or NWWDA certified product under the certification programs of these organizations. The program administrator of these programs and organizations may only grant product certification.

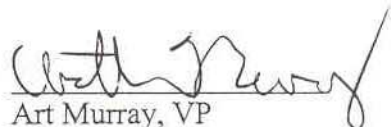
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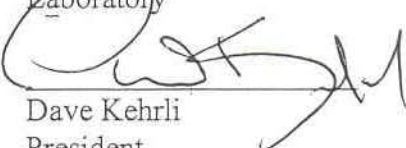
No conclusions of any kind regarding the adequacy of the glass in the test specimen may be drawn from the test. Procedure "A" in ASTM E330 was used for this test.

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Limitation of Liability: Due diligence was used in rendering this professional opinion. By acceptance of this report, this client agrees to hold harmless and indemnify ETC Laboratories, it's employees and offices and owners against all claims and demands of any kind whatsoever, which arise out of or in any manner connected with the performance of work referred to herein.

FOR ETC Laboratories


Art Murray, VP
Manager, Wind Engineering
Laboratory


Dave Kehrli
President

Appendix A - Tested Specimen Product Description

(For Certification Purposes Only)

Series/Model – M300 Falcon

ETC-02-817-11667.0 PD

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Frame:

Operating Style/Configuration-	Sliding Glass Door (OX)
Width, Height, Depth-	120 in. W. x 96 in. H. x 5-3/4 in. D.
Material-	Thermally Broken Aluminum
Corner Construction-	Mitered
Corner Fastening-	Allen Head Screws with nuts– 2 each corner, #12 x 3/4 at diagonal orientation
Corner Sealing	Urethane
Drainage	Interior Head – 3 – 3/16 inch diameter holes at interior center pocket of head at 12, 36 and 45 in. from left corner. Interior sill – 8 - 5/16 in. dia. Holes in center pocket at 4-1/2, 12-1/2, 20-1/2, 27, 40-1/2, 46-1/2, 49-1/2 & 52-1/2 in. from right corners Exterior Sill – 5 – weep slots – 1-1/4 in. W. x 1/4 in. H. with covers, at 8, 34, 60, 86, 111 in. from right corner, at 1 in. up from bottom of sill extrusion

Panels:

Operable	60-1/4 in. W. x 92-1/8 in. H. x 2-3/4 in. D.
Fixed	60-1/4 in. W. x 92-1/8 in. H. x 2-3/4 in. D.
Material-	Thermally broken aluminum
Corner Construction-	Mitered
Corner Fastening-	Interior corner is keyed stamped to the interior side, exterior side has 1 Allen screw #12 x 1 in. with nut held in place with aluminum blocks stamped in place, with sealant
Corner Sealing	Urethane
Method of Glazing-	Interior drop-in
Interior-	Aluminum snap-in bead with flexible leaf gasket
Exterior -	Flexible wedge gasket
Drainage	Weep slots at fixed panel – 1-1/4 W. in. x 1/4 in. H. at 10 and 49-1/2 in. from left corner, at base of exterior glass stop

Appendix A - Tested Specimen Product Description

(For Certification Purposes Only)

Series/Model – M300 Falcon

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Glazing:

Overall Thickness-	1.0 in. Nominal (0.953 in.)
Thickness of Glass(s) -	1/4 in. annealed (0.224/0.223 in.)
Number of Lights-	2
Laminate Thickness-	N/A
Spacer	
Sealant-	Silicone
Dimensions-	0.490 in. W. x 0.340 in. H.
Material-	Aluminum – square profile

Weather-stripping:

Frame	
Sill	Two rows of center fin pile, 0.270 in. W. x 0.230 in. H.
Head	Two rows of center fin pile, 0.270 in. W. x 0.230 in. H.
Jambs -Left	One row of center fin pile, 0.270 in. W. x 0.230 in. H.
-Right	Two rows of center fin pile, 0.270 in. W. x 0.230 in. H.
Panel	
Left Stile -Fixed panel	Rubber bulb seal with leaf, 0.375 in. W. x 0.240 in. H. 0.170 in. kerf mount
Operable panel -	Two rows of center fin pile, 0.270 in. W. x 0.230 in. H.
Right Stile -Both panels	Two rows of center fin pile, 0.270 in. W. x 0.230 in. H.
Top Rail	Two rows of rubber leaf seal, 0.350 in. H. on 0.170 in. kerf mount
Bottom Rail -Operable panel	Two rows of rubber leaf seal, 0.350 in. H. on 0.170 in. kerf mount
- Fixed panel	Rubber bulb seal with leaf, 0.375 in. W. x 0.240 in. H. on 0.170 in kerf mount

Appendix A - Tested Specimen Product Description

(For Certification Purposes Only)

Series/Model – M300 Falcon

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Hardware:

Rollers – Operable panel

Material-	Nylon wheels housed in a steel carrier
Location-	Each set of rollers was secured using two #10 x 1-1/4 inch long Flat Head screws 9-1/2 inches from the ends of the bottom rail.
Size-	Four, 1.715 in. diameter wheels in a carrier measuring 11 in. W. x 1-3/4 in. H. x 3/4 in. D.
Type/Model-	Dual tandem rollers used in a “lift and slide” hardware system

Rollers – Fixed panel

Material-	Nylon wheels housed in an aluminum carrier
Location-	Each set of rollers was secured using two #6 x 9/16 in. long Pan Head screws 8 inches from the ends of the bottom rail
Size-	Four, 1-1/4 in. diameter wheels in a carrier measuring 6-1/2 in. W. x 1-1/2 in. H. x 3/4 in. D.
Type/Model-	Dual tandem rollers

Locks/Keepers

Material-	Steel locks in an aluminum track engage brass keepers
Location-	Three locking points at 8-1/8, 46-3/4 and 71-3/8 inches from the bottom rail, on the edge of the right stile of the operable panel
Size-	Overall the aluminum track measured 90 in. H. x 7/8 in. W. x 7/8 in. D. and was fastened in place using seven #12 x 1-1/4 in. long Flat Head screws, each of the three keepers measured 2 in. H. x 9/16 in. W. x 1-1/2 in. D. and was secured using two # 6 x 1-1/4 inch long Flat Head screws
Type/Model-	Part of the “lift and slide” hardware system manufactured by G-U Hardware

Handles

Material-	Aluminum
Location-	38-5/8 in. from the bottom corner of the right stile of the operable panel
Size-	Overall the handle measured 11-1/4 in. H. x 1-1/4 in. W. x 3-3/4 in. D.
Type/Model-	Lever handle for operation of the “lift and slide” hardware system manufactured by G-U Hardware

Appendix A - Tested Specimen Product Description

(For Certification Purposes Only)

Series/Model – M300 Falcon

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Frame/Test Buck Anchorage:

Type-	Stops and Sealant
Quantity & Size-	¾ in. x ¾ in. cross-section stops, full perimeter on the exterior side, Twelve 8 inch long pieces used on the head and jambs of the interior and one 108 inch long piece used on the sill
Location-	Full perimeter on the exterior side, 8 inch pieces at the ends of the jambs and centered at 30 and 60 in. from the sill, 8 inch pieces at the ends of the head and centered at 45 and 72 in. from the left jamb, one 108 inch piece entered on the sill
Sealant-	Silicone
Shims -	
Materials	Pine plywood
Size	108 in. W. x 3/8 in. H. x 5 in D.
Location	Centered on the sill

Test Buck:

Size-	2 x 8
Material-	hemlock
Grade of Wood-	#2
Mounting gap-	1/8 in. at jambs, 3/8 in at sill and 3/16 in. at head

Review of Bill of Materials – None supplied

Review of Assembly and Detail Drawings – M300, M300 PAMMENA, M11000

Components changed or altered during testing to achieve stated results – The plastic insert was removed from the center track of the sill and it was sealed closed at the interlock using backer material and silicone. The fixed panel was sealed with silicone at its exterior perimeter. The exterior sill track cover was sealed in place with silicone. Additional weep holes were added on the interior at the sill and head.

This report, in its original form contains product drawings and a Bill of Materials.

Product Description Approval

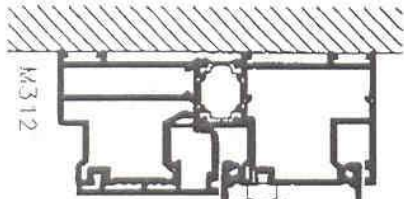
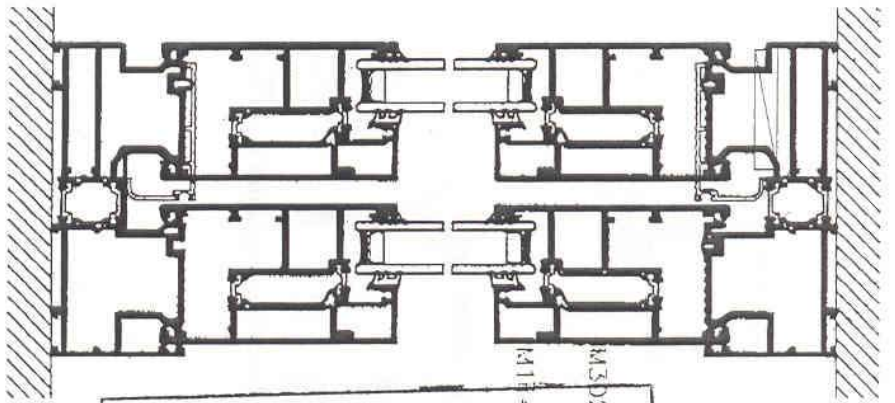
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Clients Signature Accepting Description

Product Description Analysis

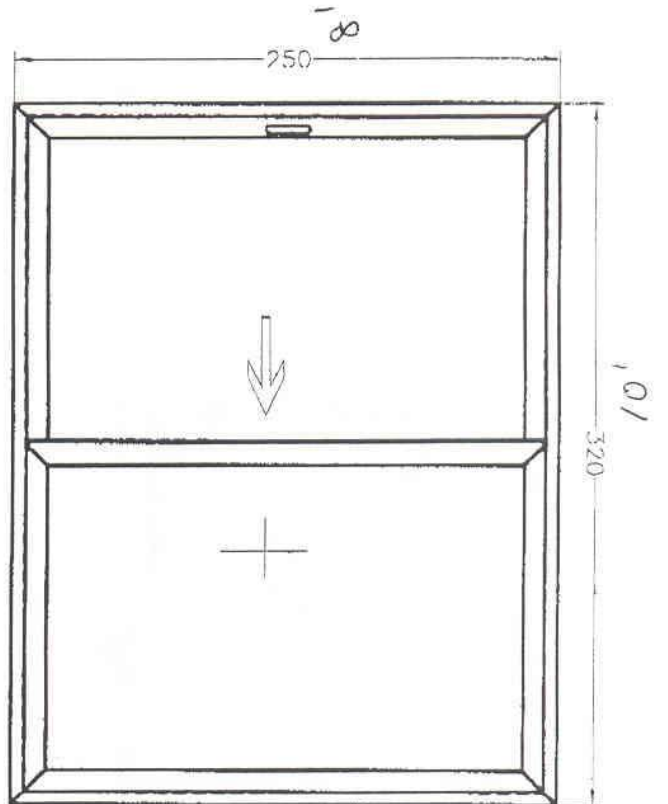
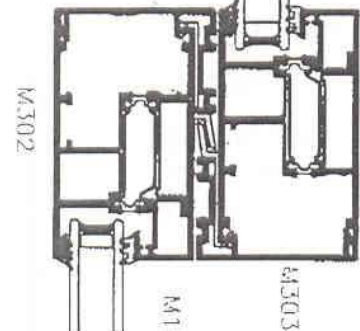
Mark Sennett

Laboratory Representative Performing
Specimen Audit



ETC Laboratories
 297 Buell Road
 Rochester, NY 14624
 (716) 328-7668

Date Verified: 5-21-03
 Verified By: MS
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M300

B=1191 gr/m
Π=390 mm

M301

B=968 gr/m
Π=275 mm

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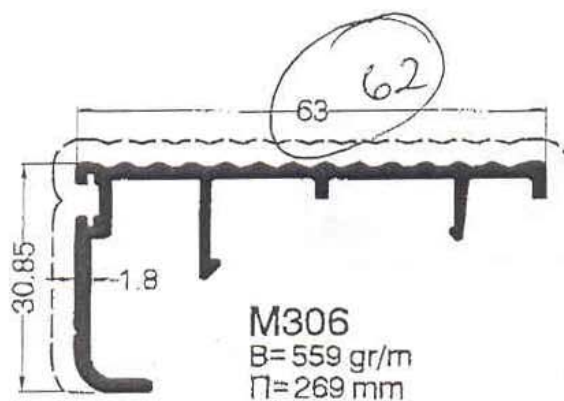
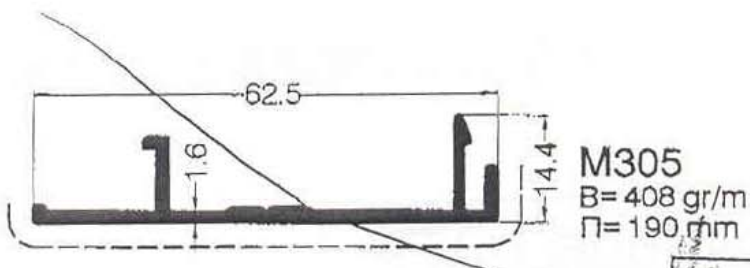
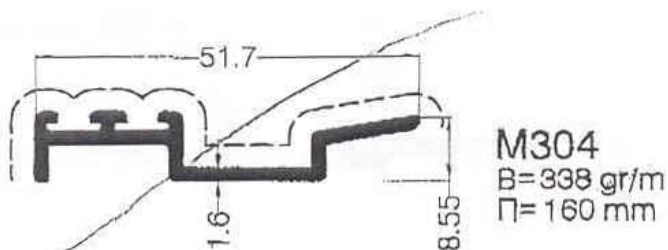
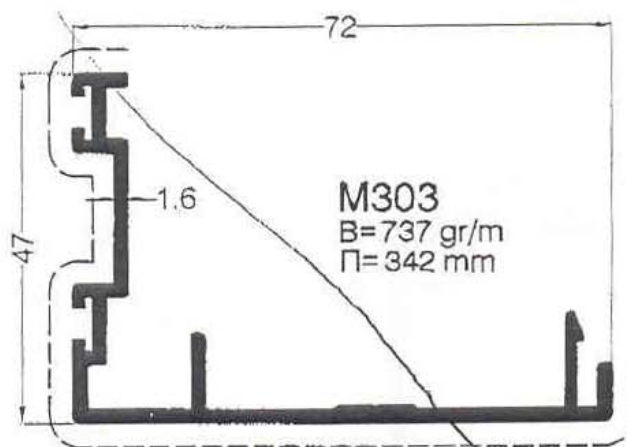
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M310

B=1472 gr/m
Π=326 mm

M311

B=1372 gr/m
Π=413 mm

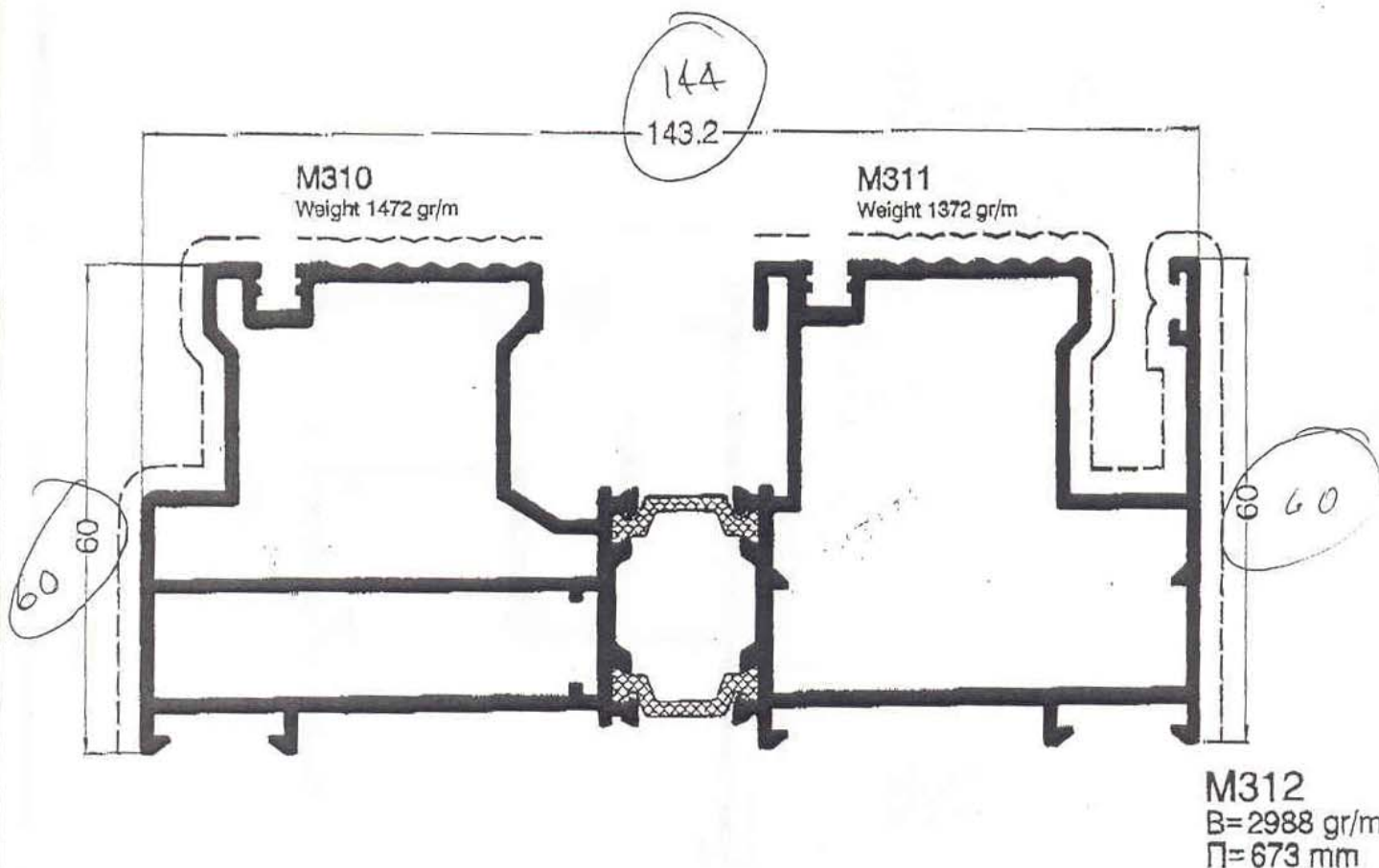

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TEL ++30 21 555 405-7, 555 423-4 FAX ++30 21 555 426 Email: alumi@the.totinet.gr

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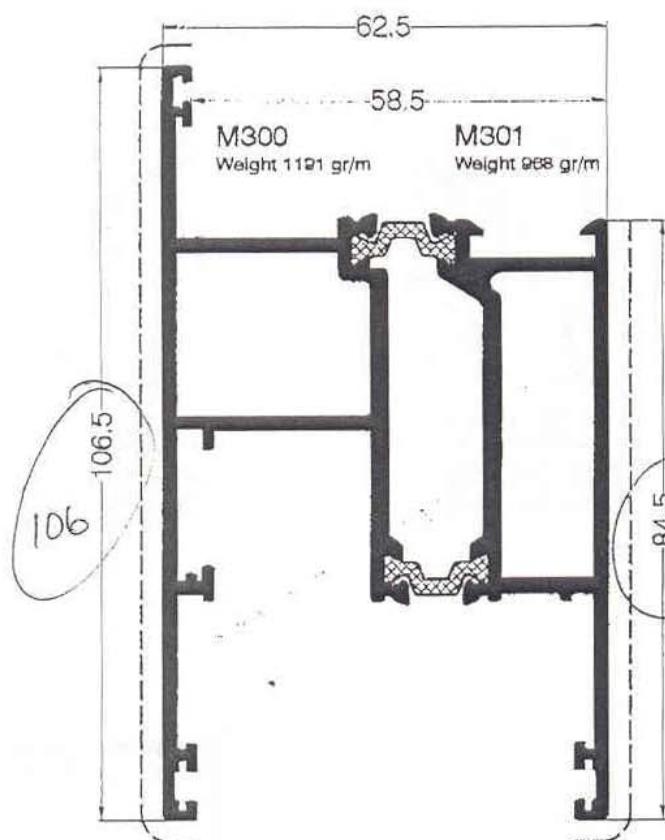
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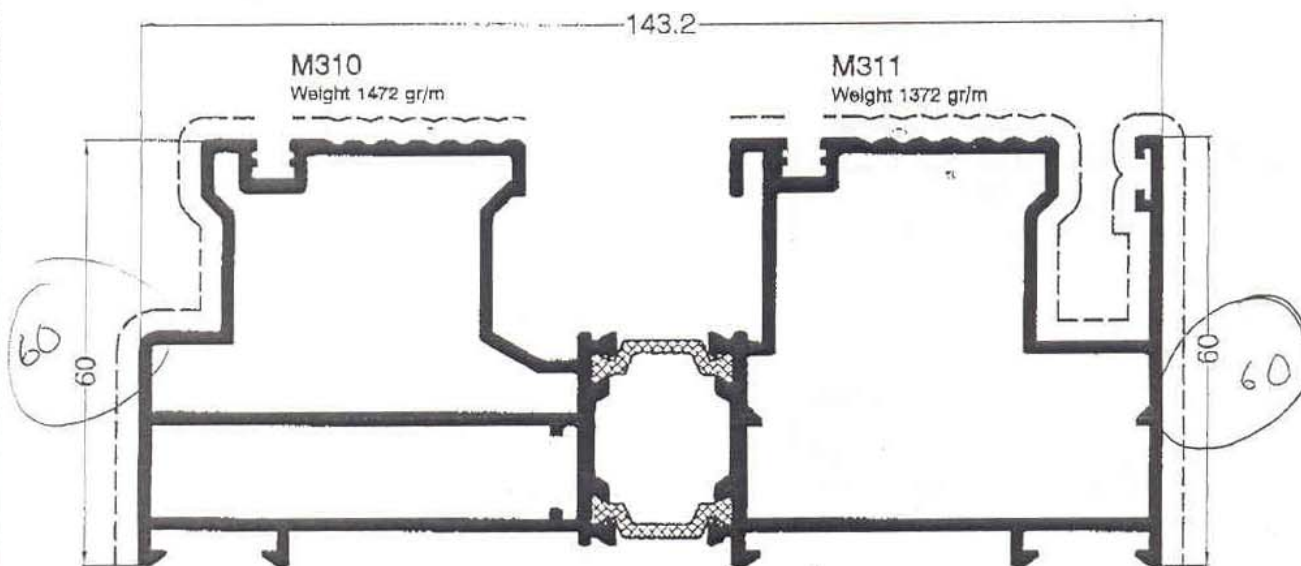
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M302
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Π=552 mm

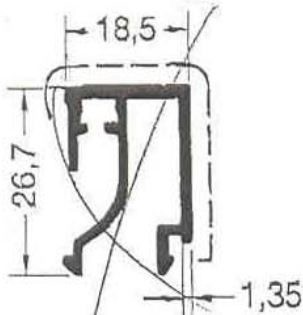


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Π=673 mm

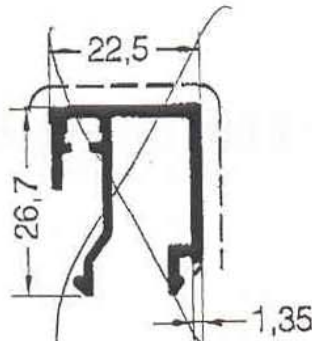
ΣΕΙΡΑ : M1100Q

ALUMIL
MILONAS S.A.

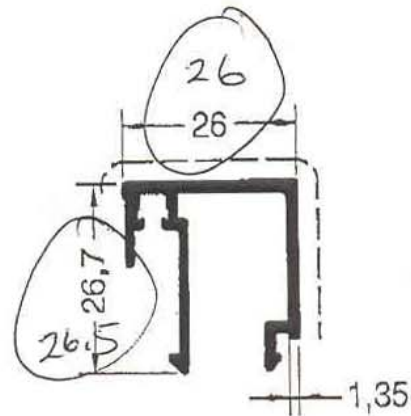
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ΠΕΡΙΓΡΑΦΤΟΣ

**M11451**

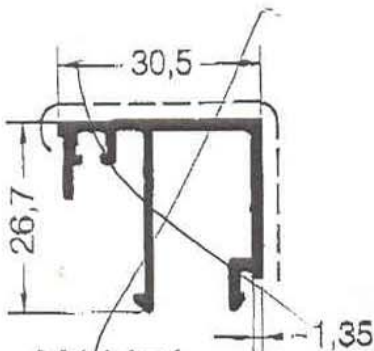
W= 307 gr/m
P= 180 mm

**M11452**

W= 313 gr/m
P= 184 mm

**M11453**

W= 325 gr/m
P= 189 mm

**M11454**

W= 351 gr/m
P= 205 mm

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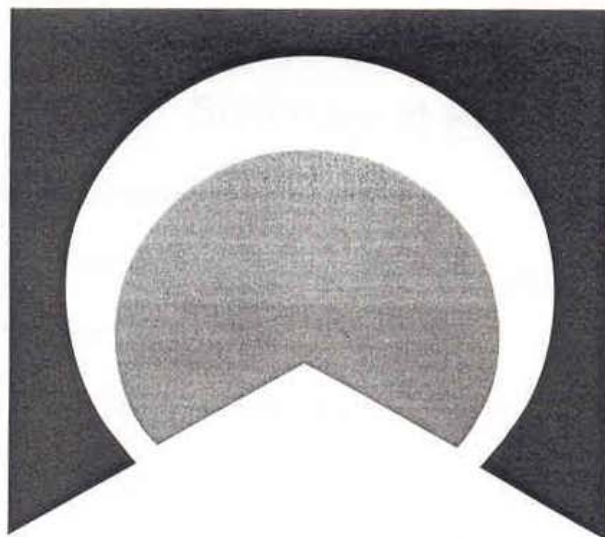
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Series/Model

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