

**NFRC SIMULATION IN ACCORDANCE WITH  
ANSI/NFRC 100, ANSI/NFRC 200 and NFRC 500**

CLEB laboratory Inc.	Submitted to:	Reissued To:
Report No.: NS-02951-1	Aluminco S.A.	
Reissued Report No.: N/A	Viotia Inofita Greece , +30 22620 47090	N/A

**Report Summary**

Operation Type:	CSSV	Product Line ID Number:	N/A
Series/Model:	Casement Window	Report Type:	Initial Certification
Report Date:	2017-11-13	Simulation Date :	2017-11-13
Revision Date:	N/A	Number of Pages:	6

**Reissue Information**

Model:	N/A	Date of Reissue:	N/A
Reason for submittal:	N/A	Revision Date:	N/A
Product Line ID Number:	N/A		

**Validation test sample configuration**

Operation Type:	CSSV	Door description:	N/A
Series/Model:	Casement Window	Panel	N/A
Frame Type:	AT	Core Fill:	N/A
Sash Type:	AT	Skin:	N/A
Reinforcement:	None	Sub-Structure:	N/A
Size:	600 mm W. x 1500 mm H. (23.62" x 59.06")		

**Glazing: AL\_7037#2-Arg90-ClrGuard**

Type: Double Sealed Unit  
 Spacer Type: A1-D  
 Overall Thickness: 26.50 mm (1.04")  
 Filling Technique: Single probe  
 Design Gas Fill: Argon/Air  
 Gas Concentration: 90% Argon, 10% Air

	Thickness		Emissivity							
	mm	inch	S1	S2	S3	S4	S5	S6	S7	S8
<b>Glass 1</b>	6.0	0.24	0.840	0.025						
<b>Glass 2</b>	5.0	0.20			0.840	0.840				
<b>Glass 3</b>	N/A	N/A					N/A	N/A		
<b>Glass 4</b>	N/A	N/A							N/A	N/A
<b>Gap 1</b>	15.50	0.61								
<b>Gap 2</b>	N/A	N/A								
<b>Gap 3</b>	N/A	N/A								

**U:2.57 W/(m².K); 0.45 BTU/(hr.ft².F)**

Note: Reference must be made to CLEB laboratory Inc. complete report for specimen description and detailed simulation results.

Simulated by:



Mélanie Comtois  
 Simulator, Thermal Evaluation  
 CLEB laboratory Inc.

Approved by:



Dave Deshaies Mc Mahon, Eng.  
 NFRC Certified Simulator, Person in Responsible Charge  
 CLEB laboratory Inc.



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## APPENDIX A: DRAWINGS AND PRODUCT INFORMATION

Report No: **NS-02951-1**, Reissued: **N/A**

**Casement Window**

**Simulation in accordance with ANSI/NFRC 100, 200, NFRC 500**

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## NFRC SIMULATION IN ACCORDANCE WITH: ANSI/NFRC 100, ANSI/NFRC 200 AND NFRC 500

### 1 INTRODUCTION

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**CLEB laboratory Inc.** has been retained by Aluminco S.A. to evaluate *a casement window* in accordance with ANSI/NFRC 100 Procedure for Determining Fenestration Product U-Factors, ANSI/NFRC 200 Solar Heat Gain Coefficient and Visible Transmittance and NFRC 500 Procedure for Determining Fenestration Product Condensation Resistance Values. The product components and manufacturing details are documented in section 4 of this report. Rounding is per NFRC 601 NFRC Unit and Measurement Policy. All imperial values are for reference only. Appendix A of this report includes drawings and information of the product.

Rating values included in this report are for submittals 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.

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.

Simulations were conducted in full compliance with NFRC requirements.

### 2 SPECIFICATION

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ANSI/NFRC 100-2017:	Procedure for Determining Fenestration Product U-Factors
ANSI/NFRC 200-2017:	Solar Heat Gain Coefficient and Visible Transmittance
NFRC 101-2017:	Procedure for Determining Thermophysical Properties of Materials for Use in NFRC-Approved Software
NFRC 500-2017:	Procedure for Determining Fenestration Product Condensation Resistance Values
NFRC 601-2017:	NFRC Unit and Measurement Policy
WINDOW 7:	Software by Lawrence Berkeley National Laboratory
THERM 7:	Software by Lawrence Berkeley National Laboratory

### 3 DISCLAIMER

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Data required for this evaluation were taken from the best available sources and every effort was taken to accurately perform the simulation documented in this report. Because of the large amount of input data and analysis it is possible that errors or omissions could occur. Neither CLEB laboratory Inc. nor any of its employees shall be held responsible for any loss or damage resulting directly or indirectly from any default, error or omission.



## 4 PRODUCT DESCRIPTION

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### 4.1 OPERATOR TYPE:

CSSV, Casement

### 4.2 SERIES/MODEL:

Casement Window

### 4.3 FRAME:

- |       |                      |  |
|-------|----------------------|--|
| 4.3.1 | Material:            | AT, Aluminium w/ Thermal breaks - All members                                      |
| 4.3.2 | Finish:              | Painted Aluminum   |
| 4.3.3 | Reinforcement:       | None   |
| 4.3.4 | Weatherstrippings:   | Compression weatherstripping at all perimeter<br>Compression bulb at all perimeter |
| 4.3.5 | Continuous Hardware: | N/A  |
| 4.3.6 | Overall dimensions:  | 600 mm W. x 1500 mm H. (23.62" x 59.06")   |

### 4.4 SASH(ES)

- |       |                               |   |
|-------|-------------------------------|---|
| 4.4.1 | Material:                     | AT, Aluminium w/ Thermal breaks - All members |
| 4.4.2 | Sash 1:                       |   |
|       | 4.4.2.1. Finish:              | Painted Aluminum                              |
|       | 4.4.2.2. Reinforcement(s):    | None  |
|       | 4.4.2.3. Weatherstripping(s): | Compression bulb at all perimeter             |
|       | 4.4.2.4. Continious Harware:  | No hardware was required to be modeled        |
| 4.4.3 | Sash 2:                       | N/A   |
| 4.4.4 | Sash 3:                       | N/A   |
| 4.4.5 | Sash 4:                       | N/A   |



#### 4.5 GLAZING METHOD:

- 4.5.1 Exterior face: EPDM gasket
- 4.5.2 Interior face: EPDM gasket

#### 4.6 SPACER:

Spacer type:	Material:	Primary sealant:	Secondary sealant:
Aluminum (A1-D)	Aluminum (Mill finish)	Polyisobutylene	Hot-Melt Butyl

#### 4.7 GRID:

- 4.7.1 Grid: None
- 4.7.2 Material and finish: N/A
- 4.7.3 Standard NFRC Grid Pattern: N/A

#### 4.8 GLAZING:

- 4.8.1 Filling Technique: Single probe
- 4.8.2 Capillary tube: No
- 4.8.3 Gas fill percentage: 90% Argon, 10% Air
- 4.8.4 Comment: None



## 5 SIMULATION RESULTS

**Table 1: Center of glazing results**

ID	Name	Insulating Glass Unit										U factor		SHGC	VT
		Glass 1				Gap 1		Glass 2							
		Type	mm	Emissivity		mm	gas	Type	mm	Emissivity		W/m2-K	Btu/hr-ft2-F		
				Surface #1	Surface #2					Surface #3	Surface #4				
10	7037#2-Arg90-3013-Kuraray Trosifol 15mil-3013	SunGuard SN 70/37 HT	6.0	0.840	0.025	14.50	Arg 90%	3013-Kuraray Trosifol 15mil-3013	6.3	0.840	0.840	1.389	0.245	0.345	0.695
20	7037#2-Arg90-ClrGuard	SunGuard SN 70/37 HT	6.0	0.840	0.025	15.50	Arg 90%	Clear, Guardian	5.0	0.840	0.840	1.410	0.248	0.346	0.700

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**Casement Window**

**Simulation in accordance with ANSI/NFRC 100, 200, NFRC 500**

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**Table 2: Overall fenestration products results**

ID	Option Name	Insulating Glass Unit								Overall Product				
		Glass 1		Gap 1			Glass 2			U Factor		SHGC	VT	CR
		Type	mm	mm	Gas	Spacer	Grid	Type	mm	W/m2-K	Btu/hr-ft2-F			
10	AL_7037#2-Arg90-3013-Kuraray Trosifol 15mil-3013	SunGuard SN 70/37 HT	6.0	14.50	Arg 90%	A1-D	None	3013-Kuraray Trosifol 15mil-3013	6.3	2.56	0.45	0.19	0.35	45
20	AL_7037#2-Arg90-ClrGuard	SunGuard SN 70/37 HT	6.0	15.50	Arg 90%	A1-D	None	Clear, Guardian	5.0	2.57	0.45	0.20	0.35	45

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**Casement Window**

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## 6 REVISION LOG

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Revision Number	Revision Date	Description
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**Casement Window**

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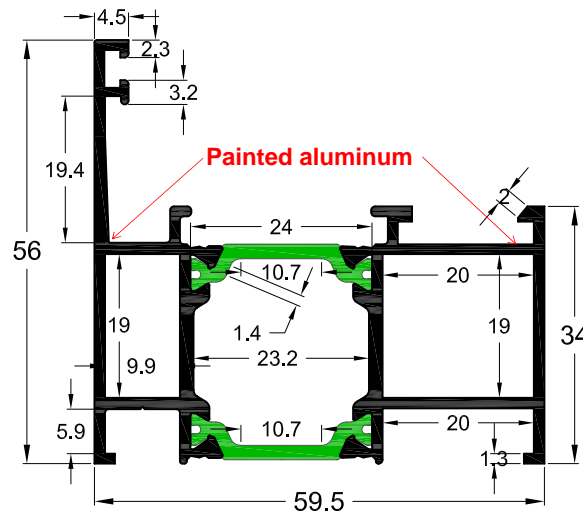
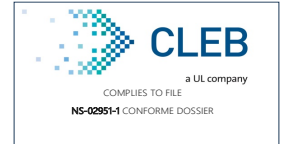
## APPENDIX A: DRAWINGS AND PRODUCT INFORMATION

Report No: **NS-02951-1**, Reissued: **N/A**

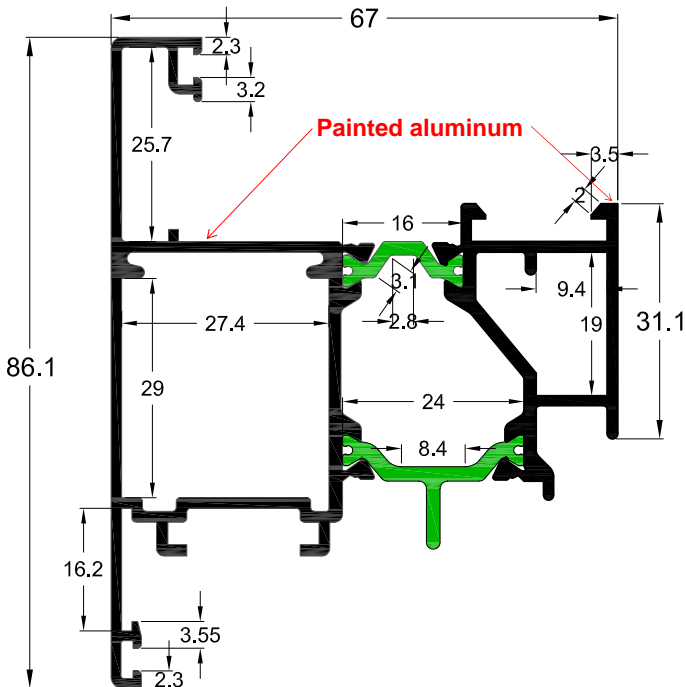
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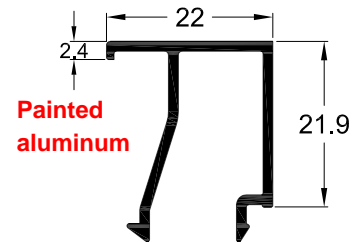
~~DUAL ACTION WINDOW~~  
**CASEMENT WINDOW**



Κωδικός   Code	<b>450-107</b>
Βάρος   Weight	1197 gr/m
Περιγραφή	Κάσα
Description	Frame

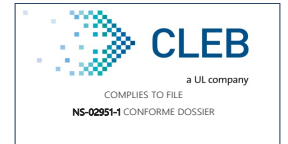


Κωδικός   Code	<b>450-207</b>
Βάρος   Weight	1639 gr/m
Περιγραφή	Φύλλο τζαμιού ανοιγόμενο προς τα έξω (Camera Europea)
Description	Outwards opening window sash (Camera Europea)

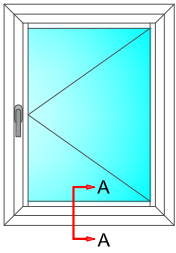


Κωδικός   Code	<b>540-773</b>
Βάρος   Weight	275 gr/m
Περιγραφή	Πηχάκι
Description	Bead

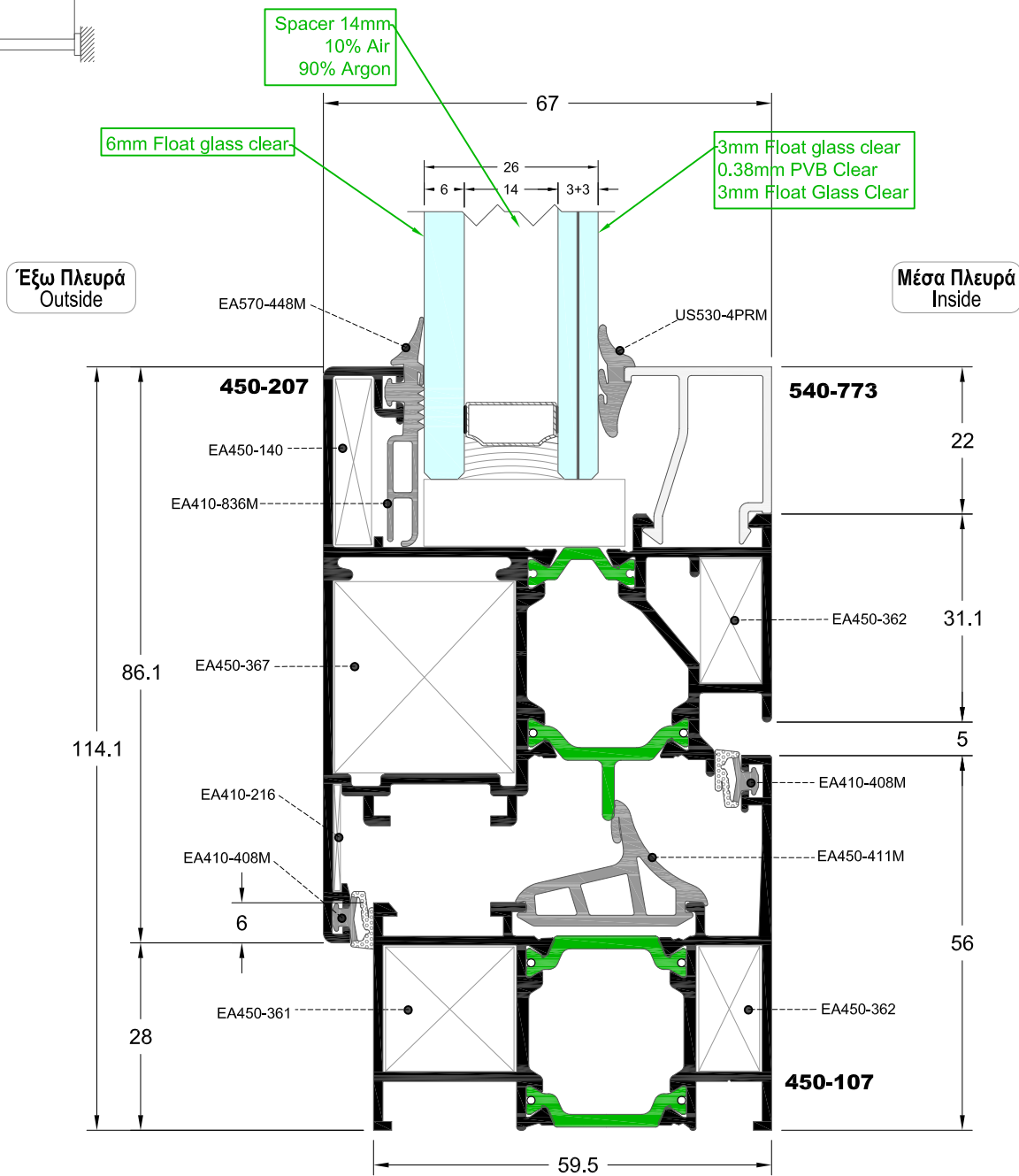
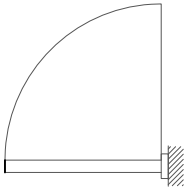
~~DUAL-ACTION WINDOW~~  
**CASEMENT WINDOW**



**ΟΨΗ**  
**FRONT VIEW**

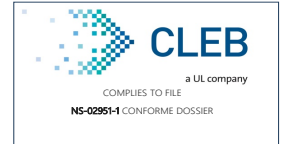


**ΚΑΤΟΨΗ**  
**TOP VIEW**

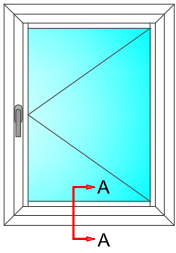


~~DUAL-ACTION WINDOW~~  
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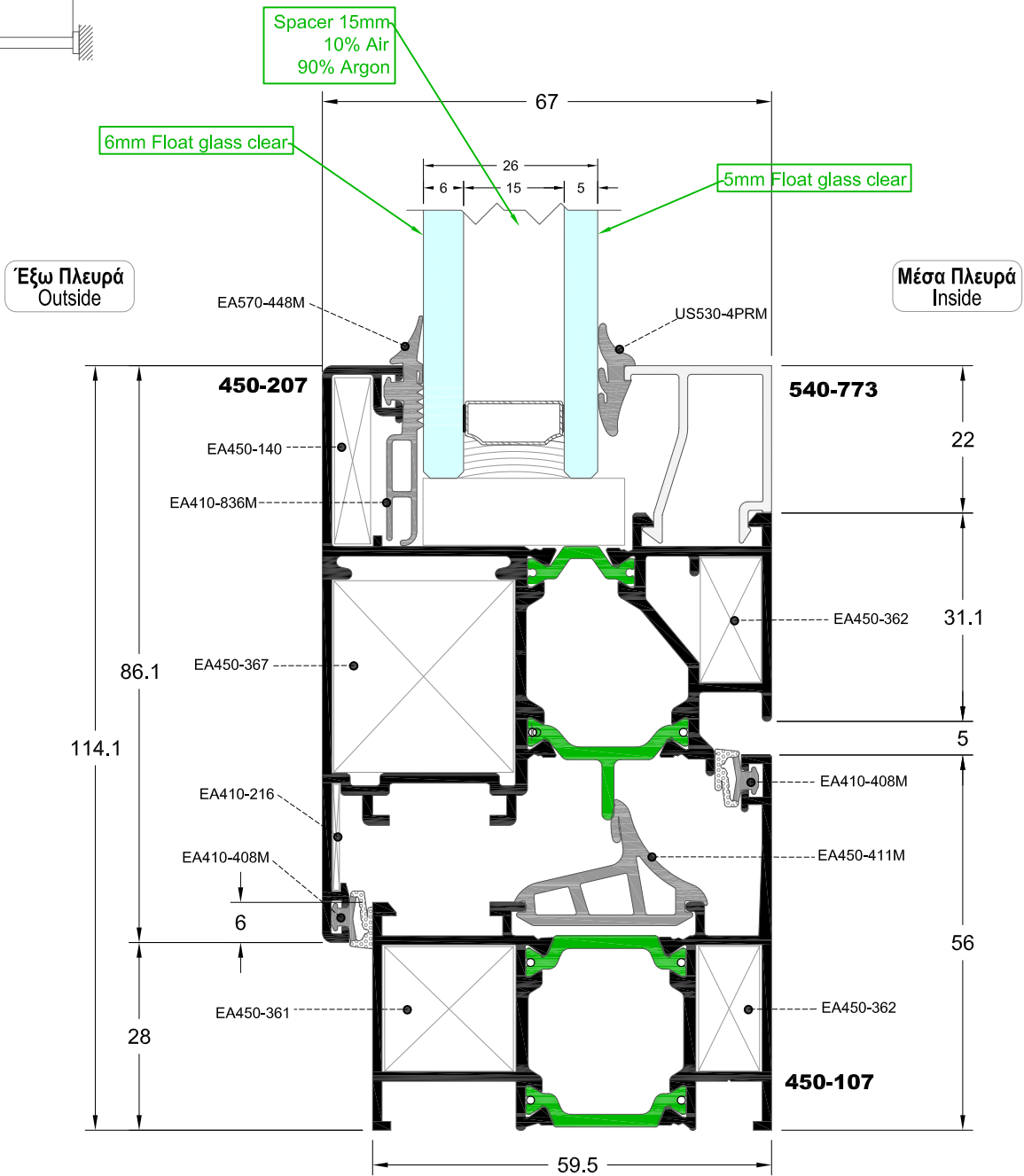
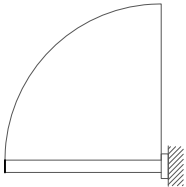
**ALUMINCO**<sup>®</sup>  
 ALUMINIUM BUILDING SYSTEMS



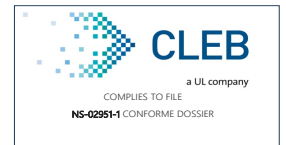
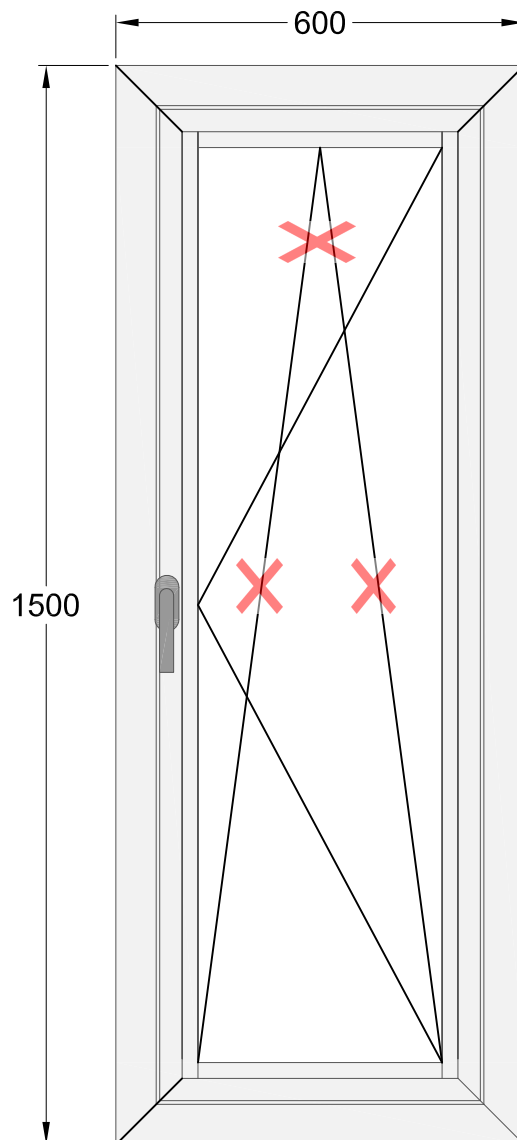
**ΟΨΗ**  
 FRONT VIEW



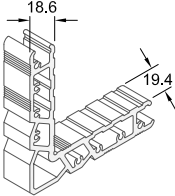

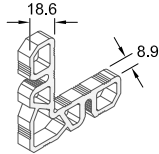
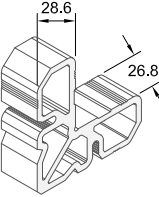
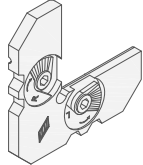
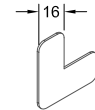
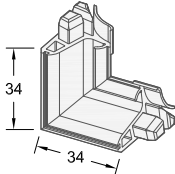
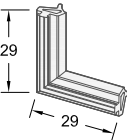
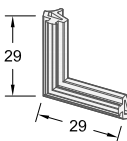
**ΚΑΤΟΨΗ**  
 TOP VIEW

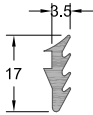



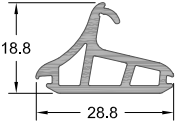
Build of materials			
A/A	CODE	DESCRIPTION	MATERIAL
1	<b>450-107</b>	FRAME PROFILE	8.4m
2	<b>450-207</b>	CASEMENT PROFILE	7.4m
3	<b>540-773</b>	BEAD	6.6m
4	<b>EA450-361</b>	CRIMPING CORNER 19.4x18.6mm (SIEGENIA)	8pcs
5	<b>EA450-362</b>	CRIMPING CORNER 8.9x18.6	16pcs
6	<b>EA450-367</b>	CRIMPING CORNER 26.8 x 28.6 mm	8pcs
7	<b>EA450-140</b>	CAST ALIGMENT CORNER 24.5 mm	8pcs
8	<b>EA410-216</b>	ALIGMENT CORNER 16mm	8pcs
9	<b>EA450-875M</b>	VULCANIZED EPDM CORNER FOR CENTRAL GASKET EA450-411M	8pcs
10	<b>EA410-874B</b>	VULCANIZED EPDM CORNER FOR FRAME GASKET EA410-408M	8pcs
11	<b>EA410-874M</b>	VULCANIZED EPDM CORNER FOR FRAME GASKET EA410-408M	8pcs
12	<b>US530-3PRM</b>	GLAZING GASKET	9m
13	<b>EA450-411</b>	EPDM CENTRAL GASKET	9m
14	<b>EA570-448</b>	EPD GLAZING GASKET	9m
15	<b>EA410-408</b>	EPDM GASKET FOR SASH & FRAME WITH WEATHERSTRIPS FOAM	18m
16	<b>U110-01SI</b>	CREMONE BOLT	2pc
17	<b>U0130-01SI</b>	TILT SCISSOR LM2200 GR.20 A0001N K20	2pc
18	<b>U0120-01SI</b>	HINGE SET LM2200-B1/10	2set
19	<b>U0140-01SI</b>	FBS-G 9MM TS B1/20 TILT KIT WITH ANTI LIFT LM4200DK 9MM	2set
20	<b>U0130-04SI</b>	MV-DK B1/20 WIDTH-HEIGHT REINFORCEMENT	2set
21	<b>U0350-02</b>	STRIKE PLATE TS B20/400	10pcs

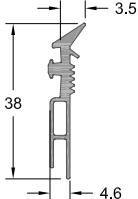


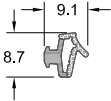
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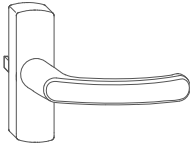
	<p>Code:</p> <p><b>EA450-361U</b></p>	<p>Description      CRIMPING CORNER 19.4 x 18.6 mm (SIEGENIA)</p> 
	<p>Code:</p> <p><b>EA450-362U</b></p>	<p>Description      CRIMPING CORNER 8.9 x 18.6 mm</p>
	<p>Code:</p> <p><b>EA450-367U</b></p>	<p>Description      CRIMPING CORNER 26.8 x 28.6 mm</p>
	<p>Code:</p> <p><b>EA450-140</b></p>	<p>Description      CAST ALIGNMENT CORNER 24.5 mm</p>
	<p>Code:</p> <p><b>EA410-216I/U</b></p>	<p>Description      ALIGNMENT CORNER 16mm</p>
	<p>Code:</p> <p><b>EA450-875M</b></p>	<p>Description      VULCANIZED EPDM CORNER FOR CENTRAL GASKET EA450-411M</p>
	<p>Code:</p> <p><b>EA410-874B</b></p>	<p>Description      VULCANIZED EPDM CORNER FOR FRAME GASKET EA410-408M</p>
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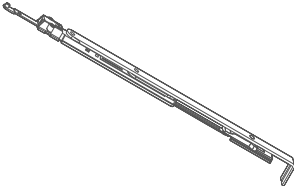
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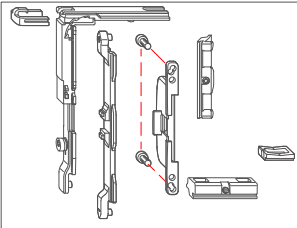
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	<p>Code:</p> <p><b>U0110-01SI</b></p>	<p>Description CREMONE BOLT</p>
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	<p>Code:</p> <p><b>U0130-01SI</b></p>	<p>Description TILT SCISSOR LM2200 GR.20 A0001N K20</p>
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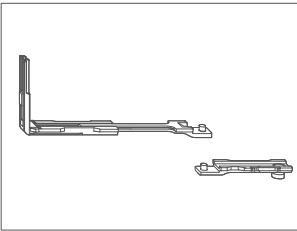
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Code:

**U0140-01SI**

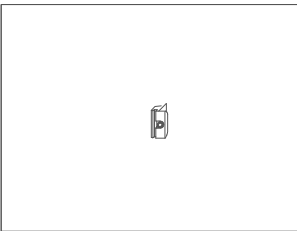
Description FBS-G 9MM TS B1/20 TILT KIT WITH ANTI LIFT LM4200DK 9MM



Code:

**U0130-04SI**

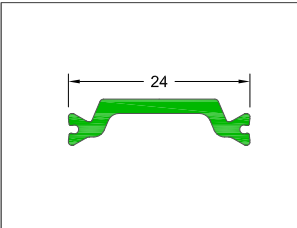
Description MV-DK B1/20 WIDTH-HEIGHT REINFORCEMENT



Code:

**U0350-02**

Description STRIKE PLATE TS B20/400

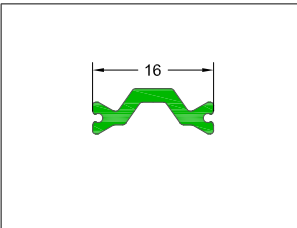


Code:

**3120-024**

Description THERMAL BRAKE STRIP OF 24mm (Q) SHAPE

Material  
Data Sheets PA 66 GF 25

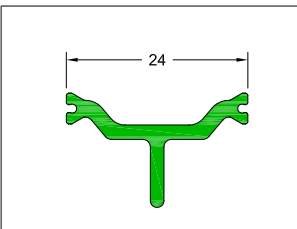


Code:

**3120-016**

Description THERMAL BRAKE STRIP OF 16mm (Q) SHAPE

Material  
Data Sheets PA 66 GF 25



Code:

**3120-904**

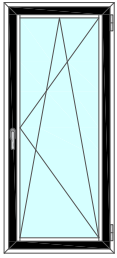
Description THERMAL BRAKE STRIP OF 24mm (T) SHAPE

Material  
Data Sheets PA 66 GF 25





# Tilt and turn double sash (1st sash)






**CAMERA EUROPEA**

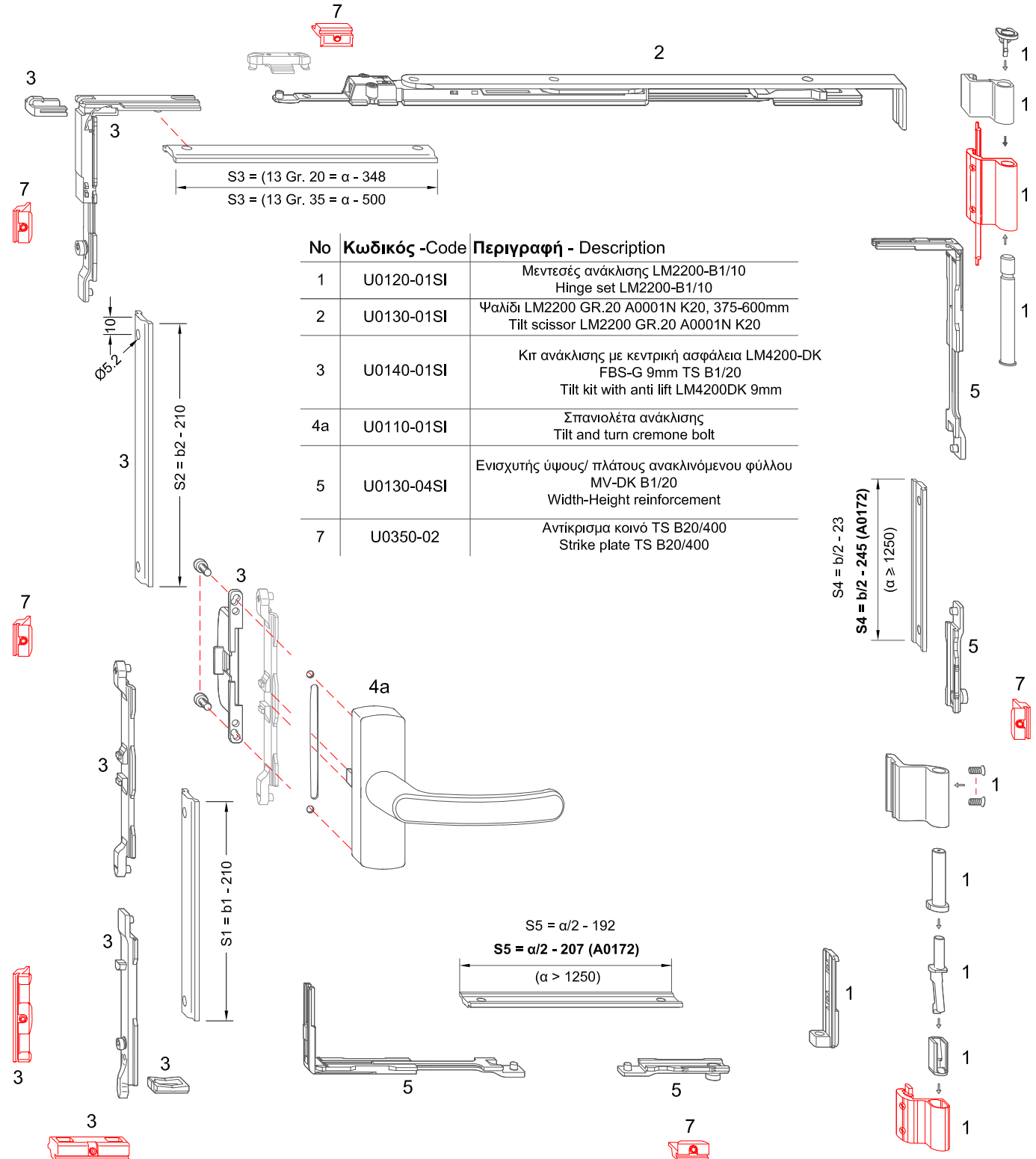


**Εξαρτήματα κάσας**  
Accessories for frame

**Εξαρτήματα φύλλου**  
Accessories for sash

Χρώματα  
Colours

Λευκό/White   
Ασημί/Silver   
Μαύρο/Black 



No	Κωδικός -Code	Περιγραφή - Description
1	U0120-01SI	Μεντεσές ανάκλισης LM2200-B1/10 Hinge set LM2200-B1/10
2	U0130-01SI	Ψαλίδι LM2200 GR.20 A0001N K20, 375-600mm Tilt scissor LM2200 GR.20 A0001N K20
3	U0140-01SI	Κιτ ανάκλισης με κεντρική ασφάλεια LM4200-DK FBS-G 9mm TS B1/20 Tilt kit with anti lift LM4200DK 9mm
4a	U0110-01SI	Σπανιολέτα ανάκλισης Tilt and turn cremone bolt
5	U0130-04SI	Ενισχυτής ύψους/ πλάτους ανακλινόμενου φύλλου MV-DK B1/20 Width-Height reinforcement
7	U0350-02	Αντίκρισμα κοινό TS B20/400 Strike plate TS B20/400

# Material Data sheets

## Insulating Profiles made of **PA 66 GF 25** / **Recycled PA 66 GF25** – dry impact resistant

No.	Characteristic	Reference standard	Unit	Samples prepared from extruded insulating strips		Injected-moulded samples
				Dry <sup>(1)</sup>	Equilibrium <sup>(2)</sup> moisture content	Dry <sup>(1)</sup>
1	Melting temperature	EN ISO 11357-3	°C	min. 250 <sup>(3)</sup>	min. 250 <sup>(3)</sup>	min. 250 <sup>(3)</sup>
2	Density	EN ISO 1183-1 or -3	g/cm <sup>3</sup>	1.3 +/- 0.05	1.3 +/- 0.05	1.3 +/- 0.05
3	Annealing residue (glass fibre content)	EN ISO 1172	%	25 +/- 2.5	25 +/- 2.5	25 +/- 2.5
4	Shore hardness D	EN ISO 868	-	82 +/- 4 <sup>(4)</sup>	78 +/- 4 <sup>(4)</sup>	84 +/- 2
5	Impact strength	EN ISO 179-1	kJ/m <sup>2</sup>	min. 30 or without break <sup>(5)</sup>	min. 40 or without break <sup>(5)</sup>	min. 35 <sup>(6)</sup>
6	Tensile strength	EN ISO 527-2 and -4	N/mm <sup>2</sup>	min. 80 <sup>(7)</sup>	min. 50 <sup>(7)</sup>	min. 110 <sup>(8)</sup>
7	Young's modulus	EN ISO 527-2 and -4	N/mm <sup>2</sup>	min. 4500 <sup>(7)</sup>	min. 2000 <sup>(7)</sup>	min. 6000 <sup>(8)</sup>
8	Elongation at break	EN ISO 527-2 and -4	%	min. 3 <sup>(7)</sup>	min. 7 <sup>(7)</sup>	min. 3 <sup>(8)</sup>

(1) Sample water content less than 0.2 % by weight (2) Fast conditioning acc. to EN ISO 1110 (23°C/50%) (3) Maximum temperature 300°C  
 (4) Specimen thickness 2mm, unstacked (5) Specimen Typ 2fU (50 mm x 10 mm x 2mm) (6) Specimen Typ 1fU (80 mm x 10 mm x 4mm) (7) Specimen Typ 1BA  
 (8) Specimen Typ 1A

## Insulating strips of **Low Lambda PA 66 GF25** - dry impact resistant

No.	Characteristic	Reference standard	Unit	Samples prepared from extruded insulating strips	
				Dry <sup>(1)</sup>	Equilibrium <sup>(2)</sup> moisture content
1	Melting temperature	EN ISO 11357-3	°C	min. 250 <sup>(3)</sup>	min. 250 <sup>(3)</sup>
2	Density	EN ISO 1183-1 or -3	g/cm <sup>3</sup>	1.0 +/- 0.1	1.0 +/- 0.1
3	Annealing residue (glass fibre content)	EN ISO 1172	%	25 +/- 2.5	25 +/- 2.5
4	Shore hardness D	EN ISO 868	-	77 +/- 4 <sup>(4)</sup>	67 +/- 4 <sup>(4)</sup>
5	Impact strength	EN ISO 179-1	kJ/m <sup>2</sup>	min. 20 <sup>(5)</sup>	min. 30 <sup>(5)</sup>
6	Tensile strength	EN ISO 527-2 and -4	N/mm <sup>2</sup>	min. 50 <sup>(6)</sup>	min. 35 <sup>(6)</sup>
7	Young's modulus	EN ISO 527-2 and -4	N/mm <sup>2</sup>	min. 2900 <sup>(5)</sup>	min. 1300 <sup>(6)</sup>
8	Elongation at break	EN ISO 527-2 and -4	%	min. 5 <sup>(6)</sup>	min. 8 <sup>(5)</sup>

1) Sample water content less than 0,2% by weight 2) Fast conditioning acc. to EN ISO 1110 (23°C / 50%) 3) Maximum temperature 300°C  
 4) Specimen thickness 2mm, unstacked 5) Specimen Typ 2fU (50 mm x 10 mm x 2mm) 6) Specimen Typ 1BA

Product code

68 / 38 / 1,1



total thickness = 26,38 mm

Glazing from external to internal:

<b>Pane 1</b>		<b>Pane 2</b>	
6 mm	Float Glass ExtraClear SunGuard SN 70/37 HT	3 mm	Float Glass Clear Guardian
		0,38 mm	PVB Clear Kurary/Trosifol/15mil.
		3 mm	Float Glass Clear Guardian
<b>Spacer 1 - 14 mm</b>			
10%	Air		
90%	Argon		

**Results**

Visible light (EN 410 - 2011)

transmittance [%]	$\tau_v = 68,4$
reflectance external [%]	$\rho_v = 12,3$
reflectance internal [%]	$\rho_v = 13,0$
general colour rendering index [%]	$R_a = 93,3$

Thermal properties (EN 673 - 2011)

U-value [W/(m <sup>2</sup> K)]	$U_g = 1,1$
slope $\alpha = 90^\circ$	

Solar energy (EN 410 - 2011)

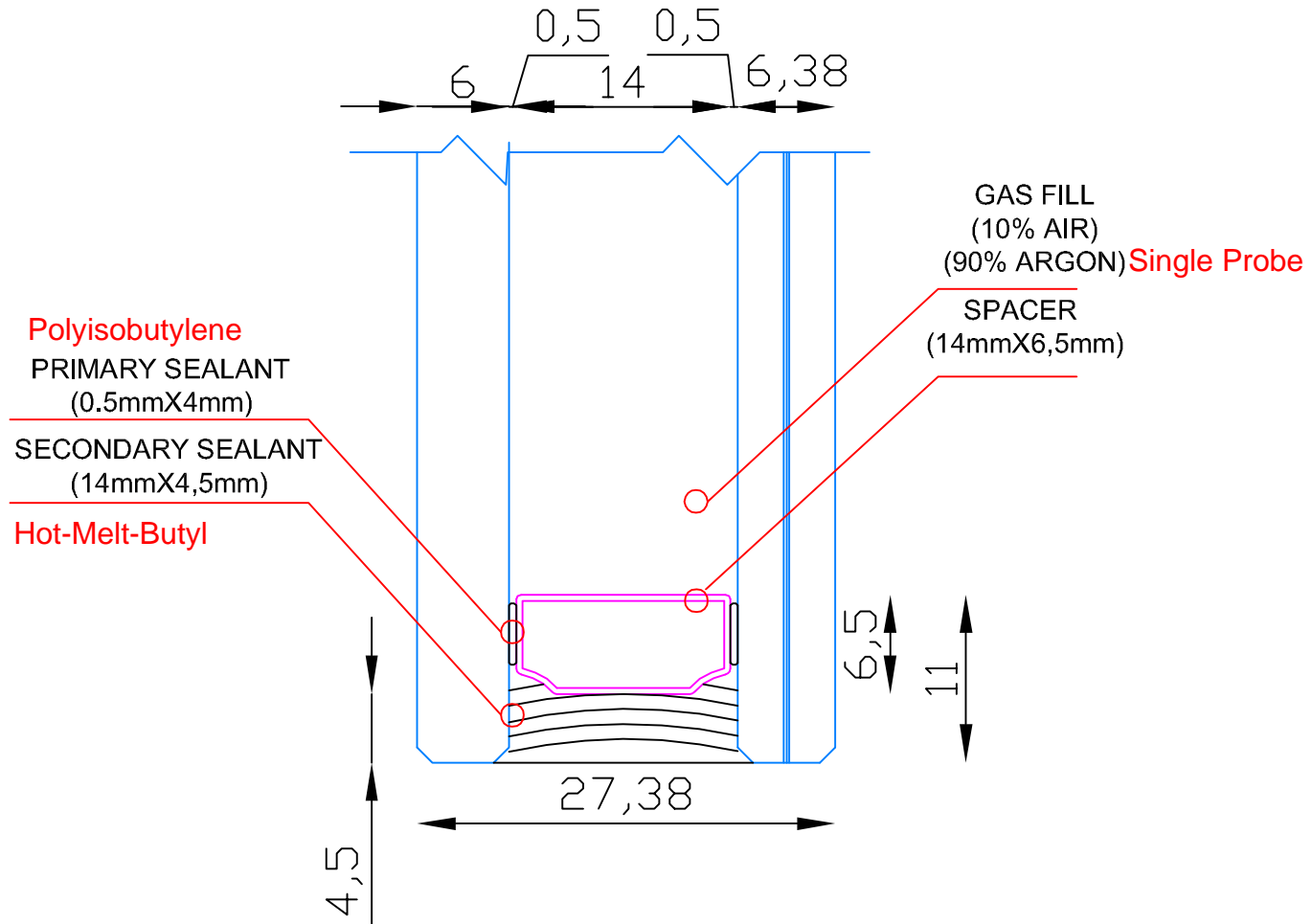
solar factor [%]	$g = 37,9$
shading coefficient [g/0.87]	$sc = 0,44$
direct transmittance [%]	$\tau_e = 33,3$
direct reflectance external [%]	$\rho_e = 35,2$
direct reflectance internal [%]	$\rho_e = 32,2$
direct absorption [%]	$a = 31,5$
UV transmittance [%]	$\tau_{UV} = 1,9$
secondary internal heat transfer factor [%]	$q_i = 4,6$

Other data

estimated sound reduction index [dB]	$R_w = \text{NPD}$
(EN 717-1)	$C = \text{NPD}$
	$C_{tr} = \text{NPD}$



The calculated values are for orientation only and do not offer any guarantee regarding the fabrication of the un-intended end-product. Glass configurations do not amount to a guarantee of product availability.



Product code

69 / 38 / 1,0



total thickness = 26 mm

Glazing from external to internal:

<p><b>Pane 1</b></p> <p>6 mm Float Glass ExtraClear SunGuard SN 70/37 HT</p>	<p><b>Spacer 1 - 15 mm</b></p> <p>10% Air 90% Argon</p>	<p><b>Pane 2</b></p> <p>5 mm Float Glass ClearGuardian</p>
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## Results

### Visible light (EN 410 - 2011)

transmittance [%]	$\tau_v = 69,0$
reflectance external [%]	$\rho_v = 12,3$
reflectance internal [%]	$\rho_v = 13,1$
general colour rendering index [%]	$R_a = 93,5$

### Thermal properties (EN 673 - 2011)

U-value [W/(m <sup>2</sup> K)]	$U_g = 1,0$
slope $\alpha = 90^\circ$	

### Solar energy (EN 410 - 2011)

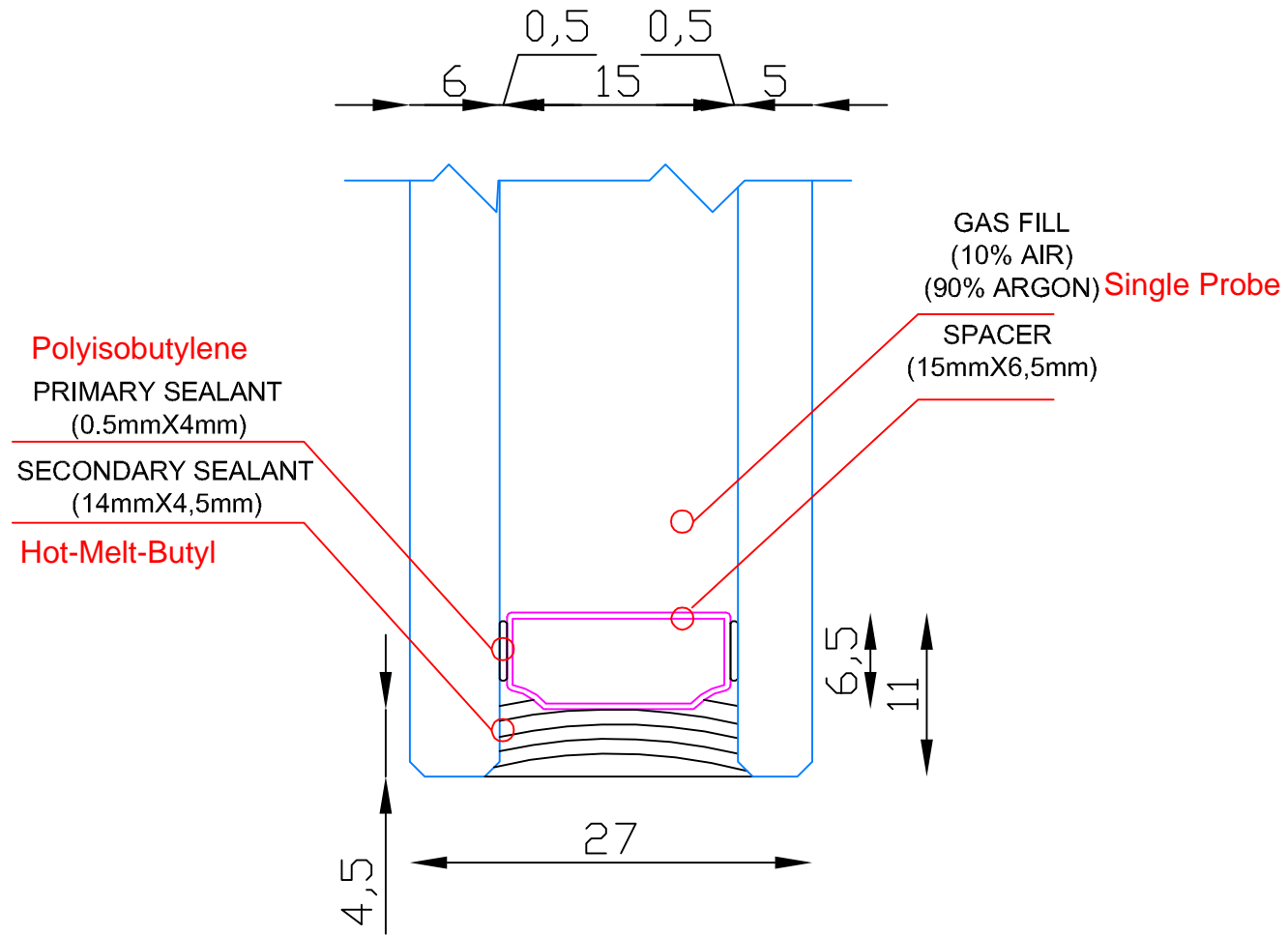
solar factor [%]	$g = 38,0$
shading coefficient [g/0.87]	$sc = 0,44$
direct transmittance [%]	$\tau_e = 35,1$
direct reflectance external [%]	$\rho_e = 35,3$
direct reflectance internal [%]	$\rho_e = 36,8$
direct absorption [%]	$a = 29,6$
UV transmittance [%]	$\tau_{uv} = 25,1$
secondary internal heat transfer factor [%]	$q_i = 2,9$

### Other data

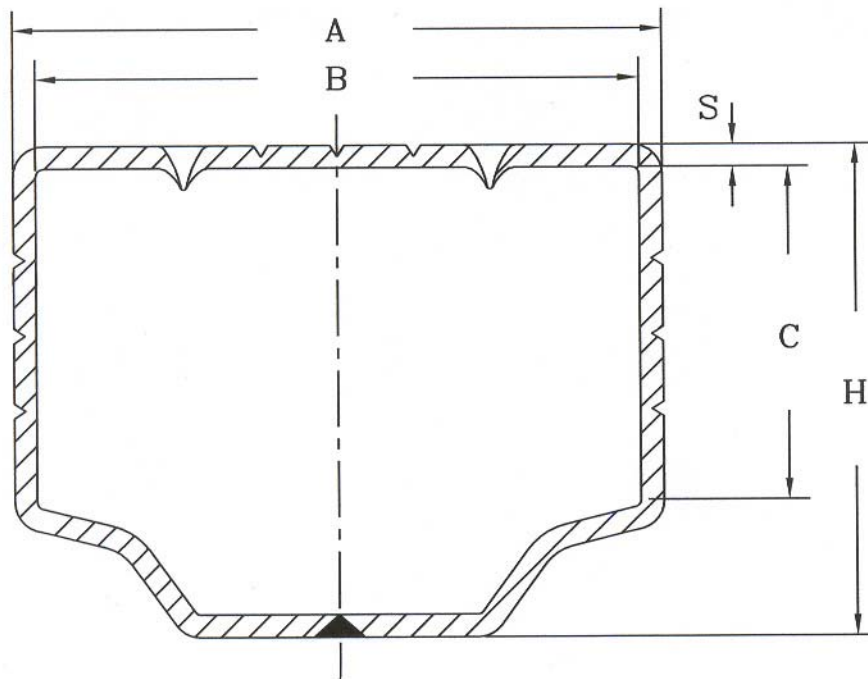
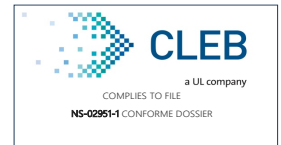
estimated sound reduction index [dB]	$R_w = \text{NPD}$
(EN 717-1)	$C = \text{NPD}$
	$C_{tr} = \text{NPD}$



The calculated values are for orientation only and do not offer any guarantee regarding the fabrication of the un-intended end-product. Glass configurations do not amount to a guarantee of product availability.



PNAAAHHGSSSN


**Mill finish Aluminum Spacer**

PGS

RIFERIMENTI	A	H	S	B	C
TOLLERANZE	+ 0.05	± 0.10	+ 0.01	± 0.20	+ 0.20
SIGLA (Profilo)	- 0.15		- 0.03		- 0.10
P. 5.5 S.L.	5.60	6.55	0.36	4.70	4.20
P. 6.5	6.50	6.50	0.36	5.70	4.20
P. 7.5	7.50	6.50	0.36	6.70	4.20
P. 8.5	8.45	6.50	0.36	7.65	4.20
P. 9.5	9.45	6.50	0.36	8.65	4.20
P. 10.5	10.45	6.50	0.36	9.65	4.20
P. 11.5	11.45	6.50	0.36	10.65	4.20
P. 12.5	12.45	6.50	0.36	11.65	4.20
P. 13.5	13.45	6.50	0.36	12.65	4.20
P. 14.5	14.45	6.50	0.36	13.65	4.20
P. 15.5	15.45	6.50	0.36	14.65	4.20
P. 17.5	17.45	6.50	0.36	16.65	4.20
P. 18.5	18.45	6.50	0.36	17.65	4.05
P. 19.5	19.45	6.50	0.36	18.65	4.20
P. 21.5	21.45	6.50	0.36	20.65	4.05
P. 23.5	23.45	6.50	0.36	22.65	4.05
P. 26.5	26.45	6.50	0.36	25.65	4.05

**NOTE:**

- A) Sulla lunghezza si considera una tolleranza di  $\pm 3$  mm
- B) Per i profili verniciati, le misure esterne sono maggiorate di una quota variabile tra 12 e 20  $\mu$