

PRIVA-LITE® XL

TECHNICAL BULLETIN

ATTENTION!!
CAREFULLY READ ALL INSTRUCTIONS
BEFORE INSTALATION

USE ONLY VALIDATED SILICONES

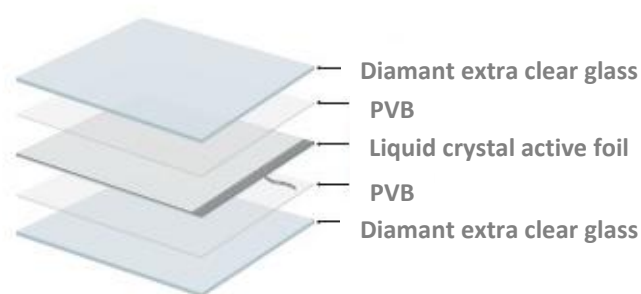
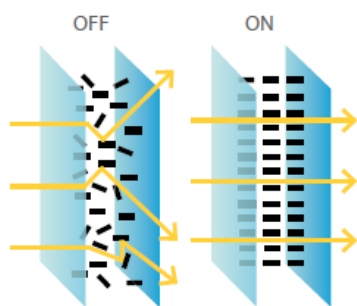
This document provides information on the inherent characteristics and features of PRIVA-LITE® XL.

1. PRODUCT and FUNCTIONS

PRIVA-LITE® XL is a Laminated Safety Glass (According to EN 14449 norm), using PVB foil.

It is composed of 2 extra-clear DIAMANT Glasses, which encapsulates a liquid crystal (LC) film inserted between PVB layers.

The LC film is composed of two PET films coated with a transparent metallic deposit and laminated together by means of a very fine layer of liquid crystal gel.



Due to voltage application liquid crystals orient themselves toward the same direction, and glass switches from translucent to transparent with almost no alteration of light transmission.

PRIVA-LITE® is translucent when not powered, and becomes transparent when voltage is applied.

Retro-projection : In 'Privacy' OFF state, PRIVA-LITE® may also be used as retro-projection screen. The retro-projection result will also be dependent on ambient lighting and beamer capacity.



Transparency
(Switch ON)



Privacy
(Switch OFF)



Retro-projection
(Switch OFF + retro-projection)

1.1 Haze

In its transparent state, PRIVA-LITE® will never be as clear as normal float glass.
 A light haze will always be visible. This haze effect is considered normal and unavoidable due to the nature of the product technology.

It should also be noted that factors such as ambient lighting (intense diffuse daylight, direct lighting...), compositions (thickness, double and triple glazing unit, bent panel...), position of the glazing (inclined panel, roof application...) and position of the viewer (non-perpendicular observation, facing glass façade...) will increase this effect of haziness.

Glassolutions Saint-Gobain taking all the necessary precaution to ensure minimum haze, and making sure that all delivered panels are within tolerances described in point 2.1 (Optical and solar control performances). Claims for haze, if within tolerance, will be refused.

1.2 Hiding power

PRIVA-LITE® is a translucent glass in its natural state (switch OFF). It's not an opaque glass. "Translucent", means that it allows light to pass through, but cause sufficient diffusion to prevent the perception of distinct images (hiding power).

The shape of colored items placed close to the PRIVA-LITE® will in consequence stay visible.
 Strong light and sun light image cannot be blocked by this glass.

2. PERFORMANCES

2.1 Optical and solar control performances

Optical/thermal		LT*	RL*	Haze*	g*	Ug (W/m²K)
STADIP Planiclear 55.2 (12mm) (For comparison)		85%	9%	~ 0.5%	71%	5.6 to 5.8
PRIVA-LITE® XL Diamant 55.4 (12mm)	ON	76%	19%	6%	63%	5.6 to 5.8
	OFF	40%	18%	99%	64%	5.6 to 5.8

*Spectrophotometric data's are given with a tolerance of +/-2%

LT = Light Transmission

RL = Reflection

g = Solar Factor

N.C. = not communicated

Above performances are valid only for standard applications and for PRIVA-LITE® panels installed and maintained according to our installation and maintenance guides.

Above performance may alter ca 1% per year depending on installation conditions.

Specifications for other compositions are available on demand.

2.2 Acoustical performances

Acoustic	$R_{a,tr}$	$R_w(C;Ctr)$
Stadip protect 55.2 (for reference)	34 dB	36 dB (-1;-2)
PRIVA-LITE® XL 55.4 (12mm)	35 dB	37 dB (-2;-3)
PRIVA-LITE® XL SILENCE 55.4 SIL*	35 dB	38 dB (-1;-3)
PRIVA-LITE® XL SILENCE 88.4 SIL*	39 dB	41 dB (-0;-2)

Specifications for other compositions are available on demand.

* ISO compositions acoustic performances with Priva-Lite® XL Sil may be calculated like a stadip silence 55.2 of the same thickness.

2.3 Electrical performances

PRIVA-LITE®	XL
Supply voltage	65VAC 50~60 Hz
Consumption ON mode @ 25°C	5.0 W/m²
Time of change of state	Ca. 1s
Life test	3 000 000 cycles ON/OFF

2.4 Power supplies

The power supply units delivered by Glassolutions Saint-Gobain have been developed to ensure a safe operation of the PRIVA-LITE®. Only power supplies from Saint-Gobain Glassolutions are allowed.

- PSUXL are CE marked.
- US PSUXL are UL-compliant.

Only PSU XL transformers supplied by Saint-Gobain are allowed to power PRIVA-LITE® XL

Characteristics	Input Voltage [VAC]	Frequency [Hz]	Output Voltage [VAC]	Max surface supply [m²]	Dimensions [mm]			Weight [kg]
					L	W	H	
PSU XL	230	50~60	65 VAC	6,37 m²	130	90	70	0,79 Kg
US PSU XL	100~120							

2.5 Protection Indexes/ classes

PRIVA-LITE® Glass	PRIVA-LITE® 55.4 (12mm)
Electrical protection index	IPX7 or IPX4
Impact safety class (EN 12600)	1B1
Electrical protection class	Class II

Laminated safety Glass type	33.4 and 44.4	55.4	66.8	Special / on demand
Resistance according EN 356	P4A	P5A	P6B	P7B

Electrical power supply unit	PSU XL
Electrical protection class (IEC 60950-1) :	Class II

3. NORMS

Priva-Lite is “CE” marked, (see DOP corresponding to glass type)

REACH Declaration (See SG Document 01/2016)

VOC Emission class : A+



PRIVA-LITE is conform to the following norms

- EN12543 Glass building – Laminated glass and laminated safety glass
- EN14449 Glass building – Laminated glass and laminated safety glass
- EN 60529 Protection index
- EN 356 Ball shock resistance
- EN12600 Pendulum test
- EN1279 Insulating glass
- EN 55014 Electromagnetic compatibility
- EN 60335-1 Electro-domestic apparatus
- IEC 61558-2-4 Safety of power transformers, power supply units and similar

4. PRIVA-LITE® XL dimensions

Minimum	Maximum standard (IPX7)	Maximum NonStandard (IPX4)
200 x 300mm	1500x3000mm	1820 x 3500mm

5. PRIVA-LITE® XL thickness

Minimum	Standard	Maximum
8mm (33.4)	12mm (55.4)	33mm (1515.6)

Maximum possible sizes depend on glass thickness (see Glassolutions norms on laminated glass).

PRIVA-LITE® composition shall be balanced (top and bottom glass with identical thickness).

Thickness of glass must be determined by the installer according to building norms.

6. PRIVA-LITE® XL Functioning scope and ISO Glazing

PRIVA-LITE® may not be installed in a place exposed to temperatures outside these limits.

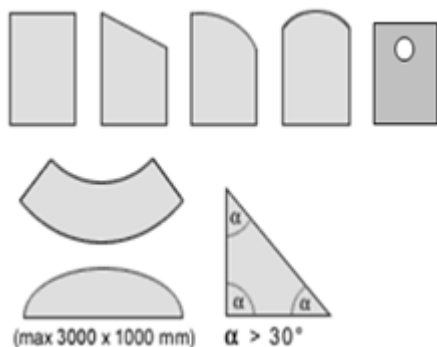
Minimum temperature	- 10°C
Maximum temperature	+70°C

Direct use in façade or exposed to sun is allowed only as ISO glass, mounted with solar control glass on the outside, and PRIVA-LITE® inside.

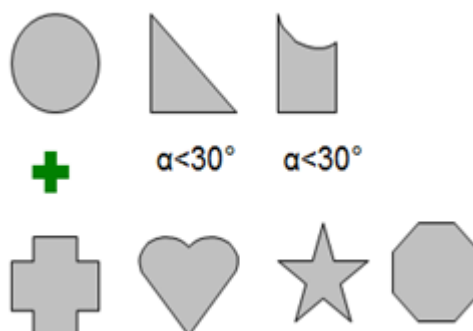
To ensure proper functioning and lifespan of the product, PRIVA-LITE® XL must be switched OFF at least **four hours per 24h**.

7. SHAPES

7.1 Available shapes:



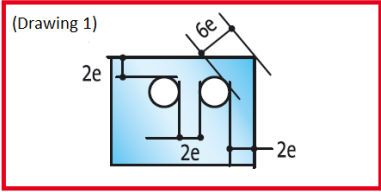
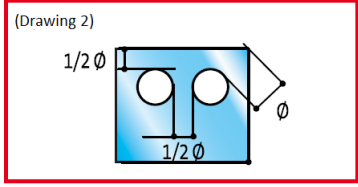
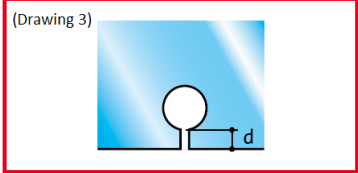
7.2 Unavailable shapes:



8. Holes and notches

8.1 Holes in PRIVA-LITE® XL are possible when \varnothing 10~50mm.

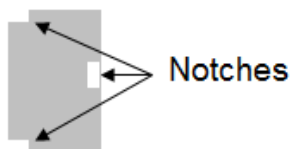
Attention: 1. LC film is separated from glass edges of the hole by 3mm +/-2mm inactive zone.
 2. Screws pressure of the fittings on a PRIVA-LITE® cannot squeezed 10N/cm

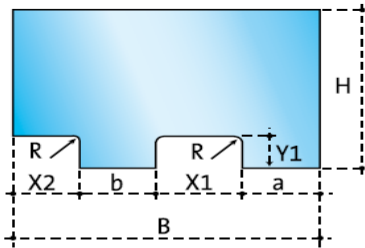
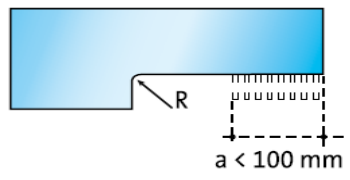
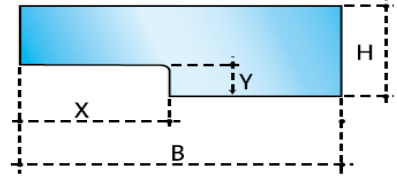
a) holes $\varnothing \leq 40$ mm	 <p>(Drawing 1)</p> <p>e = SGG Securit glass thickness</p>
b) holes $\varnothing > 40$ mm	 <p>(Drawing 2)</p> <p>\varnothing = Hole diameter</p>
c) $d \leq 2 \times$ glass thickness (released hole)	 <p>(Drawing 3)</p>

8.2 Glass notches available when conditions passed as below in the table.

Attention:

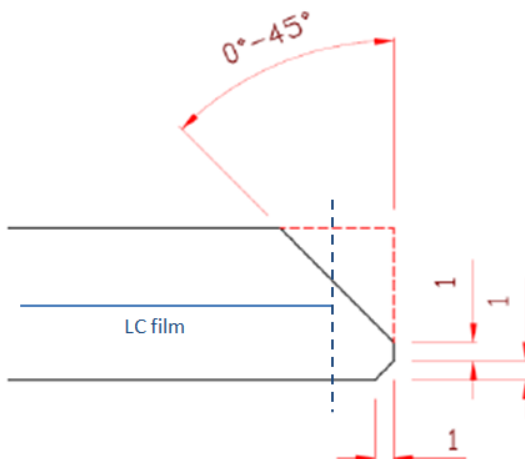
1. LC film is separated from glass edges of the notch by 3mm +/-2mm inactive zone.
2. Screws pressure of the fittings on a PRIVA-LITE® glass cannot cross 10N/cm².



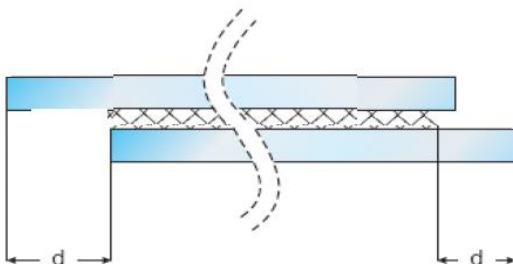
<p>1) Notch height should not cross its width.</p>	<p>(Drawing 1)</p>  <p> B = glass width H = glass height $X1, X2$ = notch width $Y1$ = notch height a = distance: notch - edge glass b = distance between notches R = radius </p>
<p>2) $b \geq X1/2$: Distance between two notches should be at least equal half the width of the bigger one.</p>	
<p>3) $R \geq e$: Arising $\rightarrow r \geq 10$ mm, Grinding or Polishing $\rightarrow r \geq 15$ mm Radius of a notch should be at least equal to the thickness of the glass and additionally depends on the kind of edge deleting.</p>	
<p>4) $a \geq X1/2$ i $a \geq 100$ mm: distance between a notch and a glass edge should be at least equal to half of its width, but bigger than 100mm.</p>	<p>(Drawing 2)</p>  <p>$a < 100$ mm</p>
<p>5) $X \leq B/3$ i $X \leq 200$ mm and $Y \leq H/3$ i $Y \leq 200$ mm: Width of a notch cannot cross 1/3 of glass width; in case of horizontal tempering neither notch height nor width cannot cross 200mm.</p>	<p>(Drawing 3)</p> 

9. Mitered edges

Mitered edges are possible in range between 0° ÷ 45° for annealed and tempered glasses, thickness 66.4 and above.



For PRIVA-LITE® glass shift of glasses tolerance $d = \pm 2\text{mm}$ [PN-EN ISO 12543-5 § 3.2.3].

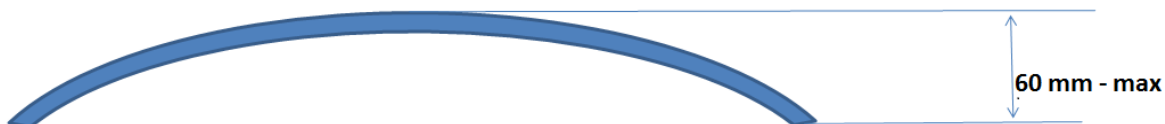


10. Curved (bent) glass

PRIVA-LITE® XL is available as a bent glass.

Minimum radius 2000mm – Maximum 40.000mm. Deflection $\leq 60\text{mm}$ (see drawing)

Maximum glass dimension 1500 x 3000.



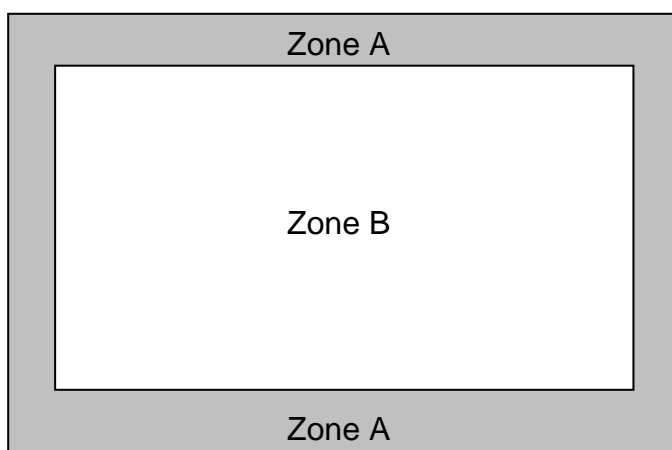
11. QUALITY TOLERANCES

Optical tolerances

	Area A (15mm from the edge)	Area B
Spot defects Black, white or transparent spots Foreign bodies	If diameter < 5mm then OK	If diameter <1mm and if no accumulation** then OK If $1\text{mm} \leq d \leq 3\text{mm}$ and max 2 spots then OK If diameter >3mm then NOK
Scratches on the LC film	If not visible when subjected to the test method EN12543-6 then OK	If <150mm, no accumulation** and not visible when subjected to the test method EN12543-6 then OK
Scratches on the glass	If not visible when subjected to the test method EN12543-6 then OK	If <30mm, no accumulation** and not visible when subjected to the test method EN12543-6 then OK
Bubbles	If diameter < 5mm and if bubbled area doesn't exceed 5% of the edge area then OK	If diameter <1mm and if no accumulation** then OK If $1\text{mm} \leq d \leq 3\text{mm}$ and max 2 bubbles then OK If diameter >3mm then NOK
Orange Skin	A light orange skin effect will always be visible in reflection and under certain conditions such as direct lighting, compositions and position of the viewer. This orange skin effect is considered normal and unavoidable due to the nature of the product makeup.	
LC waviness	Acceptable*	Unacceptable

* Allowable up to 20mm only on edges where electrode is located.

**An accumulation of defect occurs if 4 or more defects are at a distance of < 200mm from each other.



Test method EN12543-6

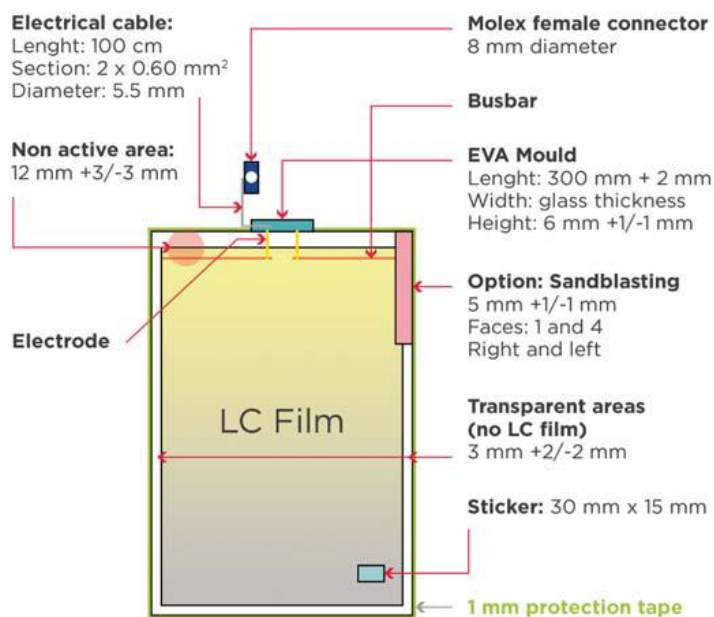
The laminated glass to be observed is put in a vertical position, in front of and parallel to a matt grey screen, lit by diffuse daylight or equivalent.

The observer will be at a distance of 2m from the glass observing it perpendicularly (the matt screen being on the other side of the glass).

12. SPECIFICATIONS

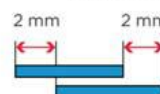
12.2.1 PRIVA-LITE® XL IPX7 single glazing technical data

Specifications PRIVA-LITE IPX7 - Single glazing



TOLERANCES

Size: $+2/-2$ mm
Thickness: $+2/-2$ mm
Bow: 3 mm/meter
Overlap: max ref
 EN 12543



Extension cables

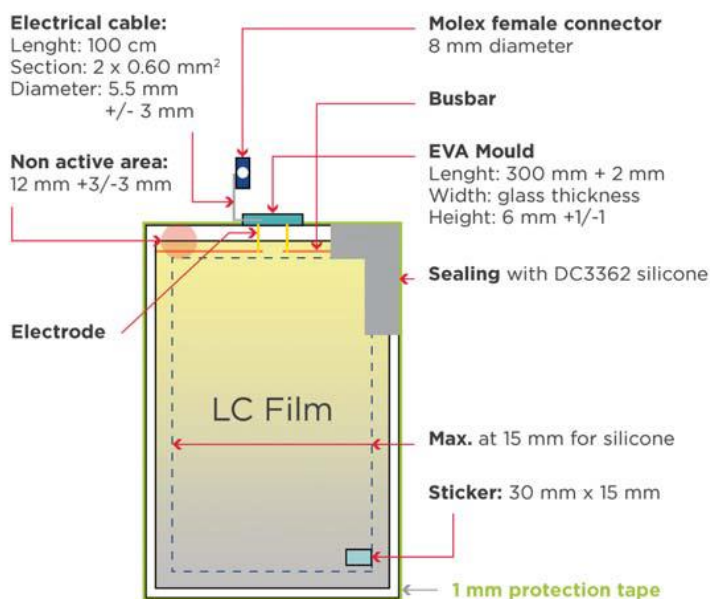
10 or 20 m long
 Section: $2 \times 0.60 \text{ mm}^2$
 Diameter: 5.5 mm
 ± 0.3 mm



Molex male connector
 8 mm diameter

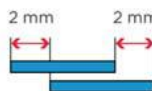
12.2.2 PRIVA-LITE® IPX7 : ISO glazing technical data

Specifications PRIVA-LITE IPX7 - Double glazing



TOLERANCES

Size: $+2/-2$ mm
Thickness: $+2/-2$ mm
Bow: 3 mm/meter
Overlap: max ref
 EN 12543



Extension cables

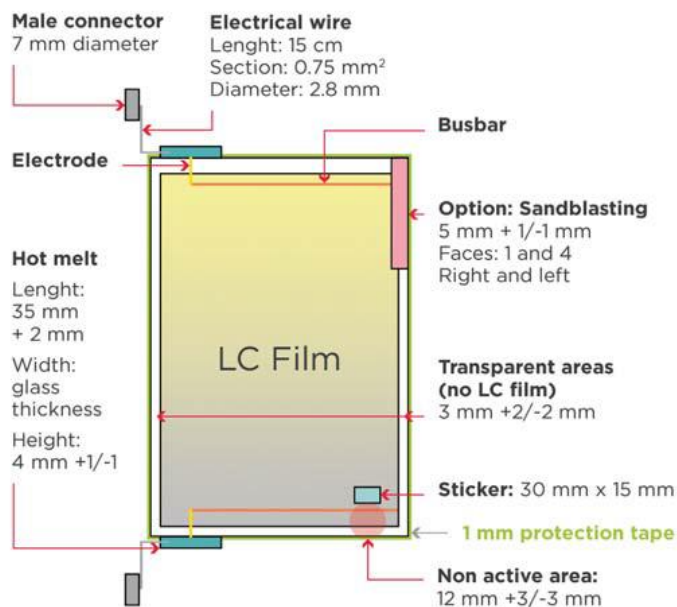
10 or 20 m long
 Section: $2 \times 0.60 \text{ mm}^2$
 Diameter: 5.5 mm
 ± 0.3 mm



Molex male connector
 8 mm diameter

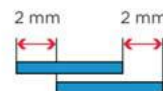
12.2.4 PRIVA-LITE® IPX4 (HOTMELT) single glazing technical data

Specifications PRIVA-LITE IPX4 - Single glazing



TOLERANCES

Size: +2/-2 mm
Thickness: +2/-2 mm
Bow: 3 mm/meter
Overlap: max ref
 EN 12543



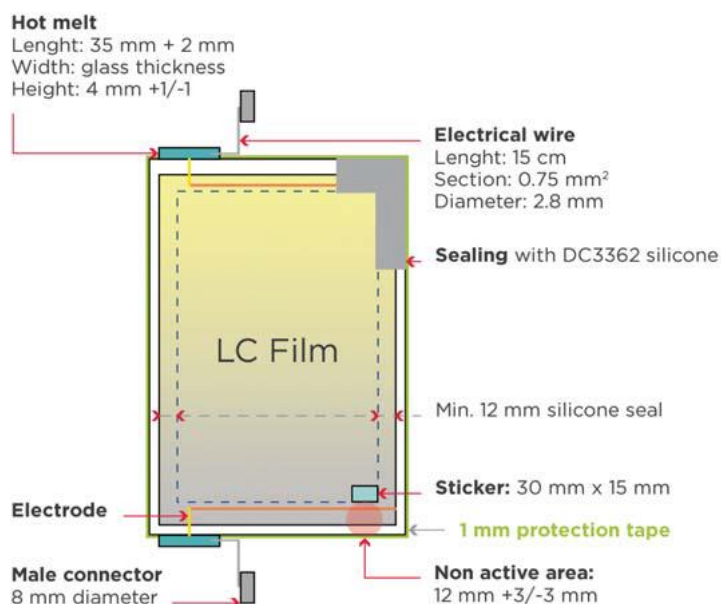
Shielded cables
 10 or 20 m long
 0.75 mm²
 Diameter: 2.8 mm



Female connectors
 9 mm diameter

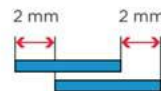
12.2.5 PRIVA-LITE® IPX4 double glazing technical data

Specifications PRIVA-LITE - Double glazing

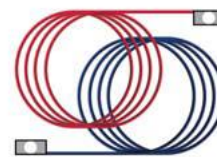


TOLERANCES

Size: +2/-2 mm
Thickness: +2/-2 mm
Bow: 3 mm/meter
Overlap: max ref
 EN 12543



Shielded cables
 10 or 20 m long
 0.75 mm²
 Diameter: 2.8 mm



Female connectors
 9 mm diameter

13. Electrodes positions depending on PRIVA-LITE® XL dimension:

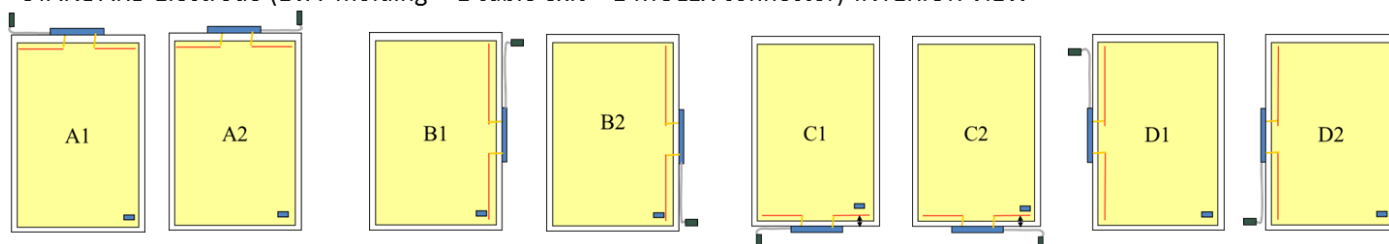
Electrodes positions are always with view from INSIDE.

13.1 : Standard (IPX7)

If an 1:4 ratio of edges length is not crossed and the longest edge is not crossing **2500mm** then busbars can be applied on shorter edge - top or bottom.

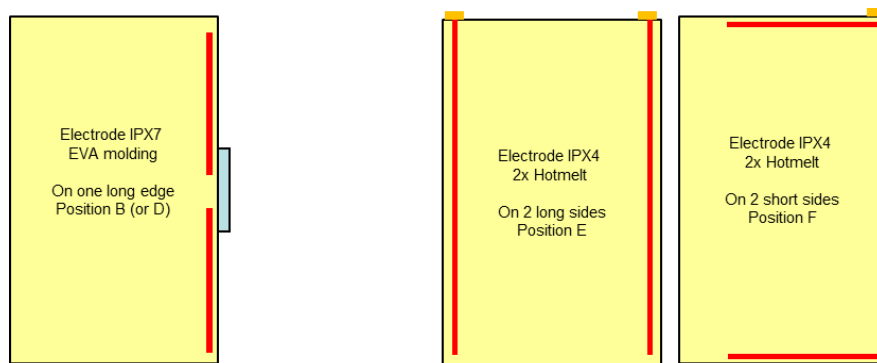
Below IPX7 solutions are possible:

STANDARD Electrode (EVA molding – 1 cable exit – 1 MOLEX connector) INTERIOR VIEW

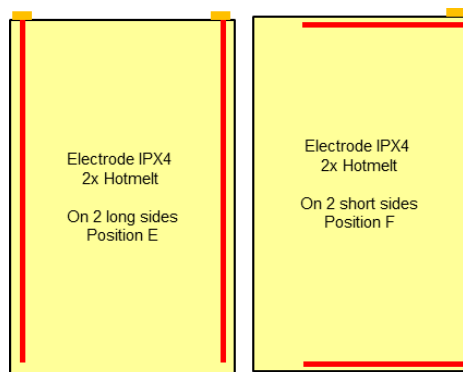


13.2 Non-standard

Non Standard A : 1:4 PRIVA-LITE® XL sides size ratio is crossed OR shorter edge is over 1500mm OR longer edge is over 2500mm then electrode location must be like below drawings 1, 2 or 3 :



Non Standard B : When shorter edge is over 1500mm AND longer edge is over 2500mm then busbar location must be IPX4, like below on the drawings. Maximum PRIVA-LITE® XL size is 1820 x 3500mm.



14. Installation silicone

The Momentive Mulsil Silicone, and the Dow Corning DC 799 supplied by Saint-Gobain are the only silicones, validated as compatible with PRIVA-LITE® edges and accepted for PRIVA-LITE® installation.

The silicone delivered by Glassolutions Saint-Gobain is regularly tested.

However, qualities and performances of the silicone are under the sole responsibility of manufacturer.

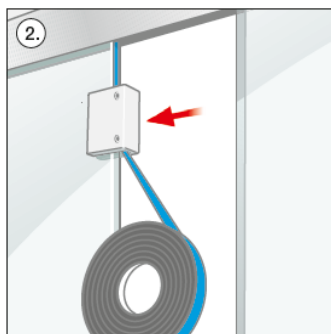


15. TESA ACX 7058 tape and applicators

TESA ACX 7058 double side adhesive tape has been tested by Glassolutions Saint-Gobain, and is compatible with PRIVA-LITE®. It is used for butt-joined applications as an alternative to Mulsil silicone.

Only the TESA ACX 7058 delivered by Saint-Gobain Glassolutions is allowed for installation.

TESA tape is 2mm thick and 9mm wide, and may be installed by dedicated applicator.



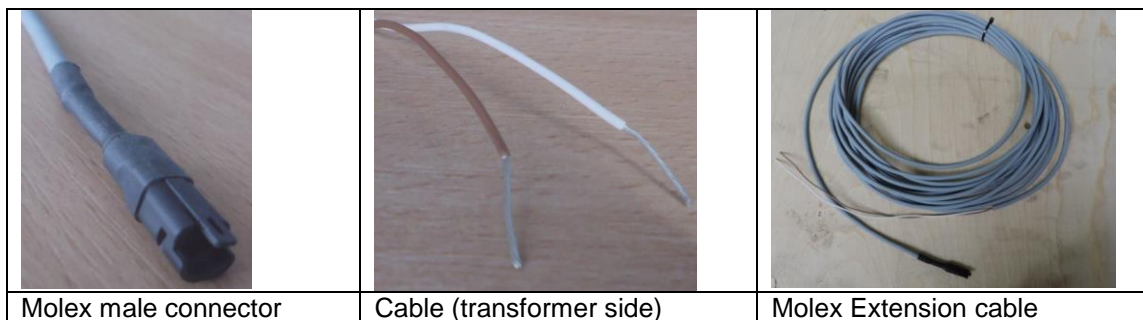
16. Electrical installation

- PRIVA-LITE® element must be connected to the electrical system by a qualified electrician with valid E1 certificate or similar certificate in force in the country of installation.
- Power supply / timer / Remote control must be always installed in electrical box with min. IP4X

17. Electrical extension cables

The extension cables delivered by Glassolutions Saint-Gobain are the only ones tested and validated as compatible with the PRIVA-LITE®:

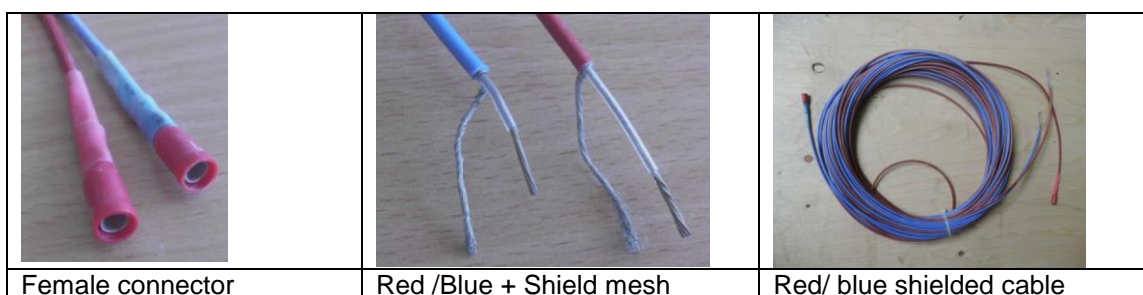
1. Standard IPX7 extension cable : Single cable with Molex male connector :



Molex female connector (on Glass)

Molex Male connector (extension cable)

2. IPX4 shielded extension cables (for hotmelts): 2 cables (Red and Blue) with female connectors.



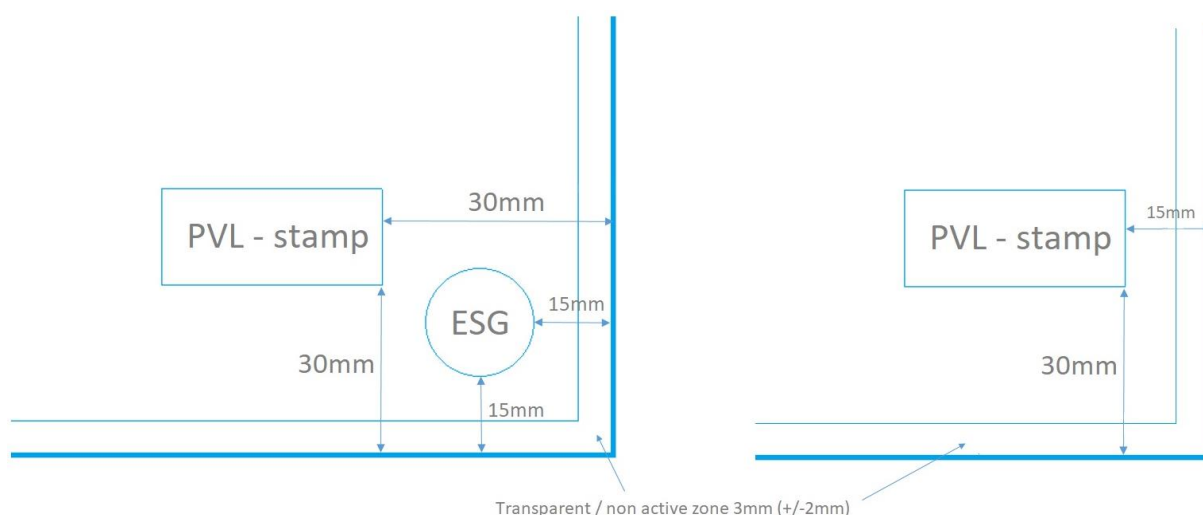
3. For sliding door application, a specific extension cable may be needed. Please contact Glassolutions Saint-Gobain for more information

18. PRIVA-LITE® MARKING

Each PRIVA-LITE® has an individual number to enable its tracking.
 The PRIVA-LITE® insert with numer and CE Marking ensures that the glass is an authentic 'PRIVA-LITE®' and its presence is also a condition to the glass warranty. Label size is 30x15mm.
 The PRIVA-LITE® label is laminated between the glass and is not removable.



PRIVA-LITE® label is located on the bottom right edge (as below) to be readable after installing. Other label positions are possible on request. Removing the label voids the warranty.



19. Warranty of PRIVA-LITE® :

Please refer to the Saint-Gobain Glassolutions Polska 'PRIVA-LITE® Warranty' document, for full conditions and warranty details.

Under the conditions mentioned below, Glassolutions Saint-Gobain guarantees the functionality of the PRIVA-LITE® for a period of 5 years, and of its power supply unit for a period of 2 years, starting from the invoice date Saint-Gobain Glassolutions Polska.

The warranty shall be invalidated if the instructions contained in our installation and maintenance guides are not followed.