

# THE ESSENTIAL

GLASS FOR FAÇADES

EUROPEAN PRODUCTS & STANDARDS

MARCH 2022

VILLA METRO BUSINESS HOUSE, WARSAW (PL), ARCHITECT: DA DZUBIA ARCHITECTS © SAINT-GOBAIN

SAINT-GOBAIN GLASS



SAINT-GOBAIN



# GLASS SOLUTIONS FOR FACADES

We play our part in designing some of the world's most iconic architectural projects, offering a wide range of innovative glazing solutions for façades. Partners such as visionary architects or contractors striving to deliver the ultimate building envelope have helped establish Saint-Gobain as a key glazing supplier to the global construction industry.

We respond to your needs with solar and heat control coatings, large dimensions, aesthetics, design, total transparency.

Our major field is specialized in providing glazing products ideal for hospitals, schools, office buildings, homes and other buildings where solar heat reduction and daylight are needed.

[www.saint-gobain-glass.pl](http://www.saint-gobain-glass.pl)

## KEY PERFORMANCE FACTORS



**Light transmission (LT)**  
Percentage of visible light directly transmitted through the glass.



**Reflection outside (LRe)**  
Percentage of visible light directly reflected from the exterior glass surface.



**Reflection inside (LRI)**  
Percentage of visible light directly reflected from the interior glass surface.



**Color rendering index**  
Ability of the glass to keep the colors the same as if they were observed without glazing. Measured with a scale from 1 to 100. A low CRI gives a poor representation of colors, and a high CRI gives a natural and bright representation of colors.



**Ug-value**  
Measure of the heat loss by penetration of the glass. The lower the Ug-value is, the better the insulating properties are. Expressed in W/m<sup>2</sup>K.



**Solar Factor (g-value)**  
Percentage of solar energy transmitted through the glass. It measures the ability of a glazing to reduce the heating of the room. The lower the solar factor is, the better it helps to improve the comfort inside of the building.



**Shading Coefficient (SC)**  
Ratio of the solar factor of a glazing unit to the solar factor of a clear float glass of nominal thickness of 3 mm to 4mm (0.87). The lower the shading coefficient number, the less heat gain and thus more shading is provided.



**Selectivity (LSG)**  
Ratio between the glass' light transmission and solar factor. When the selectivity of the glass is higher than 2, it gives you twice as much light versus heat.

## GLASS TECHNOLOGY FOR SUSTAINABLE CONSTRUCTION

Saint-Gobain Glass offers a complete range of energy efficient coated glass and insulated glazing. With solar control, low emissivity, low maintenance and transparency, our glass meets the requirements of low energy consumption buildings.

The technology behind solar control and low emissivity is a thin transparent coating of metallic oxides, deposited on one or two glass panes of a double or triple glazing unit. Invisible thermal shield, this coating retains the heat inside the building and captures the sun heat to keep it outside.

The innovation and the technology developed by Saint-Gobain serve comfort and well-being for sustainable construction.

## KEY ASSETS



**Protection from the sun heat: Solar Control Glass**  
Solar control glass reduce overheating within buildings whilst letting the daylight in.



**Protection from the cold: Low-E Glass**  
Double or triple glazing significantly reduces heat loss to the exterior, reducing the energy usage for internal heating.



**Easy maintenance - BIOCLEAN®**  
BIOCLEAN® reduces the required cleaning frequency of glazing, and also reduces the occurrence of external condensation.



**Total transparency: Anti-reflective glass**  
Anti-reflective glass is a key asset, especially for shop front projects, where reflections on glass must not block the visibility of products.

## HOW TO READ OUR PRODUCT NAMES

### COOL-LITE® XTREME 70/33 II

Performance	Light Transmission (LT)	g-value/solar factor	Processing
XTREME = Extremely selective solar control coatings (triple silver) with reinforced thermal insulation	in double glass unit with 6   16   4 mm	in double glass unit with 6   16   4 mm	II = to-be-tempered
			∅ = annealed

- COOL-LITE® XTREME** Extremely selective solar control (triple silver) with reinforced thermal insulation
- COOL-LITE® SKN** Highly selective solar control (double silver) with reinforced thermal insulation
- COOL-LITE® K** Selective solar control coatings (single silver) with thermal insulation
- COOL-LITE® ST** Standard solar control coatings offering full flexibility for processing

### COOL-LITE® SKN 183 II

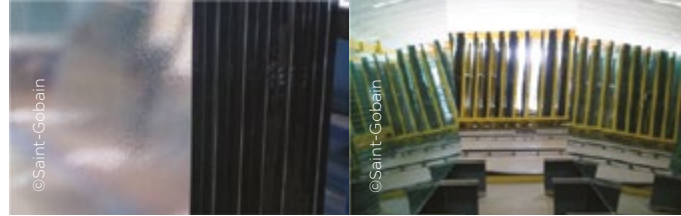
Performance	Color	Substrate	Light Transmission (LT)	Processing
S = selective	B = blue	0 = DIAMANT®	at 6 mm mono pane	II = to-be-tempered
K = K-value (Ug-value)	G = golden	1 = PLANICLEAR®		∅ = annealed
T = temperable	N = neutral	2 = PARSOL® Bronze		
	S = silver	3 = PARSOL® Grey		
		4 = PARSOL® Green		
		7 = PARSOL® Sapphire blue		

## EASYPRO®

EASYPRO® is a revolutionary and unique temporary surface protection developed and offered exclusively by Saint-Gobain. Deposited on to-be-tempered coated glass, it delivers effective protection against mechanical damage as well as ageing, during transport and processing, from deposition of the coating until tempering. During tempering, EASYPRO® simply burns off without leaving any residue inside or outside the furnace and without any negative impact on the environment or personal health and safety.

### Developed for the ease of processing, EASYPRO® offers flexibility and productivity

- EASYPRO® protects the coating so there is a reduced risk of surface scratches when transporting the glass and also increase the shelf life of coated glass on stock or cut offering more flexibility.
- EASYPRO® help to save time and money by eliminating time to unseal packs and dispose plastic waste. This also reduces the risk of injury associated with this activity. There is also significant gain in productivity due to tempering cycle times being reduced with EASYPRO®. Internal waste can be significantly improved and quality issues can be reduced.



### EASYPRO® is also an ally for ambitious architectural projects and helps to preserve the aesthetic and performance of the coated glass after tempering

- EASYPRO® contributes considerably to the improvement of the quality of glass after tempering, and participates to the reduction of anisotropy. EASYPRO® helps not to have to compromise between the quality and the productivity
- EASYPRO® on Saint-Gobain solar control coatings guarantees to deliver the most performant glass with optimal aesthetics for the most demanding projects, such as those that boast impressive Overlength large span glass.



### EASYPRO® is a sustainable innovation, minimizing waste and saving energy

- This protective layer not only reduces the amount of packaging used during transportation to protect the glass but as well facilitates loading into trucks, and reduces the carbon footprint during transport.
- It reduces the scraps and damages, thus improving industrial performance during glass processing and generating less waste.
- EASYPRO® offers energy saving benefits by allowing reduced temperature levels in the furnace.



### EASYPRO® protects today the following to-be-tempered coatings (on PLANICLEAR® and DIAMANT®):

- COOL-LITE® XTREME II (standard with EASYPRO®, except XTREME SILVER II)
- COOL-LITE® SKN II and KN II (standard with EASYPRO®)
- EASYPRO® is also available on demand on some PLANITHERM® II glass for thicknesses from 4 mm to 12 mm. Please check with your local sales team.

## OVERLENGTH

To answer a major trend in architecture, we think big. Our large-scale range now includes glass panes with dimensions up to:

# 18 x 3,21 m

The benefits are revolutionary:

- greater design possibilities,
- spectacular optical highlights,
- larger evenly shaped facades,
- panoramic views while benefiting from a high performance glazing.

Coatings available, on DIAMANT® or PLANICLEAR® (in 8, 10 and 12 mm):

- PLANITHERM® II
- COOL-LITE® SKN II
- COOL-LITE® XTREME II

The glass can be heat-treated, laminated, and processed as multifunctional Insulated Glass Units (IGU) (double Glazed Units (DGU) or triple Glazed Units (TGU)).

Contact us for individual inquiries.









# OUR PRODUCTS

## Double Glazing Units

coating	color in reflection	light transmission LT <sup>1</sup> [%]	solar factor g-value <sup>1</sup>	shading coefficient SC	selectivity LT / g	reflection outside LRe [%]	reflection inside LRi [%]	Ug-value <sup>2</sup> [W/m <sup>2</sup> K]	weight [kg/m <sup>2</sup> ]	assessed sound reduction index Rw,P (C, Ctr) <sup>3</sup> [dB]	use as mono glazing (coating on #2)	processing possibilities			
												tempering	lamination tested towards PVB <sup>4</sup>	bending <sup>5</sup>	screen-printing & enamelling <sup>6</sup>

  **Extremely selective solar control coating with reinforced thermal insulation**  
**COOL-LITE<sup>®</sup> XTREME in double glazing unit (6 | 16 | 4 mm, 90% Argon, coating on face #2) on PLANICLEAR<sup>®</sup> or DIAMANT<sup>®</sup>**  
 Values given according to the standards <sup>1</sup>EN 410, <sup>2</sup>EN 673 and <sup>3</sup>EN 12758

COOL-LITE <sup>®</sup> XTREME 70/33 II DIAMANT <sup>®</sup> with EASYPRO <sup>®</sup>	extra neutral	71	0.33	0.38	2.15	11	13	1.0	25.0	35(-1;-5)		to be tempered		Yes <sup>5</sup>	
COOL-LITE <sup>®</sup> XTREME 70/33 DIAMANT <sup>®</sup>	extra neutral	71	0.33	0.38	2.15	11	13	1.0	25.0	35(-1;-5)					
COOL-LITE <sup>®</sup> XTREME 70/33 II with EASYPRO <sup>®</sup>	neutral	70	0.33	0.38	2.12	11	13	1.0	25.0	35(-1;-5)		to be tempered		Yes <sup>5</sup>	
COOL-LITE <sup>®</sup> XTREME 70/33	neutral	70	0.33	0.38	2.12	11	13	1.0	25.0	35(-1;-5)					
<b>NEW</b> COOL-LITE <sup>®</sup> XTREME 61/29 II DIAMANT <sup>®</sup> with EASYPRO <sup>®</sup>	extra neutral	62	0.29	0.33	2.14	11	15	1.0	25.0	35(-1;-5)		to be tempered			
<b>NEW</b> COOL-LITE <sup>®</sup> XTREME 61/29 DIAMANT <sup>®</sup>	extra neutral	62	0.29	0.33	2.14	11	14	1.0	25.0	35(-1;-5)					
<b>NEW</b> COOL-LITE <sup>®</sup> XTREME 61/29 II with EASYPRO <sup>®</sup>	neutral	61	0.29	0.33	2.10	11	15	1.0	25.0	35(-1;-5)		to be tempered			
<b>NEW</b> COOL-LITE <sup>®</sup> XTREME 61/29	neutral	61	0.29	0.33	2.10	11	14	1.0	25.0	35(-1;-5)					
COOL-LITE <sup>®</sup> XTREME SILVER II DIAMANT <sup>®</sup>	bright silver	50	0.25	0.29	2.00	30	18	1.0	25.0	35(-1;-5)		to be tempered		Yes <sup>5</sup>	
COOL-LITE <sup>®</sup> XTREME SILVER II	Silver	49	0.25	0.29	1.96	30	18	1.0	25.0	35(-1;-5)		to be tempered		Yes <sup>5</sup>	
COOL-LITE <sup>®</sup> XTREME 50/22 II DIAMANT <sup>®</sup> with EASYPRO <sup>®</sup>	extra neutral	48	0.21	0.24	2.29	16	18	1.0	25.0	35(-1;-5)		to be tempered		Yes <sup>5</sup>	
COOL-LITE <sup>®</sup> XTREME 50/22 II with EASYPRO <sup>®</sup>	neutral	47	0.21	0.24	2.24	16	18	1.0	25.0	35(-1;-5)		to be tempered		Yes <sup>5</sup>	

  **Highly selective solar control coating with reinforced thermal insulation**  
**COOL-LITE<sup>®</sup> SKN in double glazing unit (6 | 16 | 4 mm, 90% Argon, coating on face #2) on PLANICLEAR<sup>®</sup> or DIAMANT<sup>®</sup>**  
 Values given according to the standards <sup>1</sup>EN 410, <sup>2</sup>EN 673 and <sup>3</sup>EN 12758

COOL-LITE <sup>®</sup> SKN 083 II with EASYPRO <sup>®</sup>	extra neutral	76	0.41	0.47	1.85	12	13	1.0	25.0	35(-1;-5)		to be tempered		Yes <sup>5</sup>	
COOL-LITE <sup>®</sup> SKN 083	extra neutral	76	0.41	0.47	1.85	12	13	1.0	25.0	35(-1;-5)					
COOL-LITE <sup>®</sup> SKN 183 II with EASYPRO <sup>®</sup>	neutral	75	0.40	0.46	1.88	12	13	1.0	25.0	35(-1;-5)		to be tempered		Yes <sup>5</sup>	
COOL-LITE <sup>®</sup> SKN 183	neutral	75	0.40	0.46	1.88	12	13	1.0	25.0	35(-1;-5)					
COOL-LITE <sup>®</sup> SKN 076 II with EASYPRO <sup>®</sup>	extra neutral	71	0.38	0.44	1.87	13	15	1.0	25.0	35(-1;-5)		to be tempered	Yes <sup>8</sup>	Yes <sup>5</sup>	
COOL-LITE <sup>®</sup> SKN 076	extra neutral	71	0.38	0.44	1.87	13	15	1.0	25.0	35(-1;-5)					
COOL-LITE <sup>®</sup> SKN 176 II with EASYPRO <sup>®</sup>	neutral	70	0.37	0.43	1.89	13	15	1.0	25.0	35(-1;-5)		to be tempered	Yes <sup>8</sup>	Yes <sup>5</sup>	
COOL-LITE <sup>®</sup> SKN 176	neutral	70	0.37	0.43	1.89	13	15	1.0	25.0	35(-1;-5)					
COOL-LITE <sup>®</sup> SKN 065 II with EASYPRO <sup>®</sup>	extra neutral	62	0.35	0.40	1.77	17	19	1.0	25.0	35(-1;-5)		to be tempered	Yes <sup>8</sup>	Yes <sup>5</sup>	
COOL-LITE <sup>®</sup> SKN 065	extra neutral	62	0.35	0.40	1.77	17	18	1.0	25.0	35(-1;-5)			Yes <sup>8</sup>		
COOL-LITE <sup>®</sup> SKN 165 II with EASYPRO <sup>®</sup>	neutral	61	0.34	0.39	1.79	16	19	1.0	25.0	35(-1;-5)		to be tempered	Yes <sup>8</sup>	Yes <sup>5</sup>	
COOL-LITE <sup>®</sup> SKN 165	neutral	61	0.34	0.39	1.79	16	18	1.0	25.0	35(-1;-5)			Yes <sup>8</sup>		
COOL-LITE <sup>®</sup> SKN 054 II with EASYPRO <sup>®</sup>	extra neutral	53	0.29	0.33	1.83	18	23	1.0	25.0	35(-1;-5)		to be tempered	Yes <sup>8</sup>	Yes <sup>5</sup>	
COOL-LITE <sup>®</sup> SKN 054	extra neutral	53	0.29	0.33	1.83	19	22	1.0	25.0	35(-1;-5)			Yes <sup>8</sup>		
COOL-LITE <sup>®</sup> SKN 154 II with EASYPRO <sup>®</sup>	neutral	52	0.28	0.32	1.85	18	23	1.0	25.0	35(-1;-5)		to be tempered	Yes <sup>8</sup>	Yes <sup>5</sup>	
COOL-LITE <sup>®</sup> SKN 154	neutral	52	0.28	0.32	1.85	19	22	1.0	25.0	35(-1;-5)			Yes <sup>8</sup>		
COOL-LITE <sup>®</sup> SKN 045	neutral	42	0.22	0.25	1.91	19	15	1.1	25.0	35(-1;-5)					
COOL-LITE <sup>®</sup> SKN 145	neutral	41	0.22	0.25	1.86	19	15	1.1	25.0	35(-1;-5)					
COOL-LITE <sup>®</sup> SKN 044 II with EASYPRO <sup>®</sup>	extra neutral	43	0.23	0.27	1.87	21	15	1.1	25.0	35(-1;-5)		to be tempered	Yes <sup>8</sup>		
COOL-LITE <sup>®</sup> SKN 144 II with EASYPRO <sup>®</sup>	neutral	42	0.23	0.26	1.83	20	15	1.1	25.0	35(-1;-5)		to be tempered	Yes <sup>8</sup>		

<sup>4</sup> Solar control coating in contact with PVB modifies performances and aesthetics. Please contact us to get the approved list.

<sup>5</sup> Bending results depend on the process/technology used; trials should be done for validation.

<sup>6</sup> Screen-printing/roller coating/spray/digital printing inks and enamels validation is required.

<sup>7</sup> COOL-LITE<sup>®</sup> SKN 154 may have a slight color deviation in transmission compared to SKN 154 II. Validation by Mock-up is recommended if both versions are used on the same facade.

<sup>8</sup> This coating can be laminated for use on a facade up to 1.500m<sup>2</sup> and project must be made from a single production batch from SGG.

# Double Glazing Units

coating	color in reflection	light transmission LT <sup>1</sup> [%]	solar factor g-value <sup>1</sup>	shading coefficient SC	selectivity LT / g	reflection outside LRe [%]	reflection inside LRi [%]	Ug-value <sup>2</sup> [W/m <sup>2</sup> K]	weight [kg/m <sup>2</sup> ]	assessed sound reduction index Rw,P (C, Ctr) <sup>3</sup> [dB]	use as mono glazing (coating on #2)	processing possibilities			
												tempering	lamination tested towards PVB <sup>4</sup>	bending <sup>5</sup>	screen-printing & enamelling <sup>6</sup>



**Selective solar control coating with reinforced thermal insulation**  
**COOL-LITE® K in double glazing unit (6 | 16 | 4 mm, 90% Argon, coating on face #2) on PLANICLEAR®**  
 Values given according to the standards <sup>1</sup>EN 410, <sup>2</sup>EN 673 and <sup>3</sup>EN 12758

COOL-LITE® KN 166 II with EASYPRO®	neutral	61	0.39	0.45	1.56	22	26	1.0	25.0	35(-1;-5)		to be tempered			
COOL-LITE® KN 148 II with EASYPRO®	neutral	47	0.32	0.37	1.47	27	18	1.0	25.0	35(-1;-5)		to be tempered			



**Selective solar control coating with thermal insulation**  
**COOL-LITE® K in double glazing unit (6 | 16 | 4 mm, 90% Argon, coating on face #2 with PLANITHERM® XN on face #3) on PLANICLEAR®**  
 Values given according to the standards <sup>1</sup>EN 410, <sup>2</sup>EN 673 and <sup>3</sup>EN 12758

COOL-LITE® KG 137 tempered	golden	34	0.28	0.32	1.21	33	28	1.1	25.0	35(-1;-5)		to be tempered			
COOL-LITE® KG 137 annealed	golden	35	0.27	0.31	1.30	30	25	1.1	25.0	35(-1;-5)					
COOL-LITE® KNT 164	neutral	58	0.42	0.49	1.38	13	7	1.1	25.0	35(-1;-5)		temperable	Yes		
COOL-LITE® KNT 155	neutral	48	0.35	0.44	1.37	16	7	1.1	25.0	35(-1;-5)		temperable	Yes		
COOL-LITE® KNT 140	neutral	38	0.27	0.31	1.41	22	9	1.1	25.0	35(-1;-5)		temperable	Yes		
COOL-LITE® KS 147	silver	43	0.30	0.34	1.26	42	34	1.1	25.0	35(-1;-5)					
COOL-LITE® KS 146 II	silver	43	0.29	0.33	1.48	33	16	1.1	25.0	35 (-1;-5)		to be tempered			
COOL-LITE® KS 138 II	silver	37	0.25	0.29	1.48	38	17	1.1	25.0	35(-1;-5)		to be tempered			



**Solar control glass offering full flexibility for processing**  
**COOL-LITE® ST in double glazing unit (6 | 16 | 4 mm, 90% Argon, coating on face #2 with PLANITHERM® XN on face #3) on PLANICLEAR®**  
 Values given according to the standards <sup>1</sup>EN 410, <sup>2</sup>EN 673 and <sup>3</sup>EN 12758

COOL-LITE® ST BRIGHT SILVER DIAMANT®	silver	63	0.52	0.60	1.21	32	31	1.1	25.0	35(-1;-5)	Yes	temperable	Yes	Yes <sup>5</sup>	Yes
COOL-LITE® ST BRIGHT SILVER	silver	61	0.51	0.58	1.20	32	31	1.1	25.0	35(-1;-5)	Yes	temperable	Yes	Yes <sup>5</sup>	Yes
COOL-LITE® ST 167	neutral	61	0.49	0.56	1.24	21	21	1.1	25.0	35(-1;-5)	Yes	temperable	Yes	Yes <sup>5</sup>	Yes
COOL-LITE® ST 150	neutral	46	0.38	0.44	1.21	19	19	1.1	25.0	35(-1;-5)	Yes	temperable	Yes	Yes <sup>5</sup>	Yes
COOL-LITE® ST 136	grey	34	0.28	0.32	1.21	23	20	1.1	25.0	35(-1;-5)	Yes	temperable	Yes		Yes
COOL-LITE® ST 120	silver	19	0.17	0.20	1.12	32	26	1.1	25.0	35(-1;-5)	Yes	temperable	Yes		Yes
COOL-LITE® STB 136	blue	33	0.28	0.32	1.18	19	17	1.1	25.0	35(-1;-5)	Yes	temperable	Yes		Yes
COOL-LITE® STB 120	blue	20	0.18	0.21	1.11	21	29	1.1	25.0	35(-1;-5)	Yes	temperable	Yes		Yes



**Low-E coating in double glazing unit (4 | 16 | 4 mm, 90% Argon, coating on face #3) on PLANICLEAR® or DIAMANT®**  
 Values given according to the standards <sup>1</sup>EN 410, <sup>2</sup>EN 673 and <sup>3</sup>EN 12758

PLANITHERM® XN II DIAMANT® (with EASYPRO® on demand)	extra neutral	83	0.67	0.77	1.24	12	12	1.1	20.0	31(-1;-4)		to be tempered		Yes <sup>5</sup>	
PLANITHERM® XN DIAMANT®	extra neutral	83	0.67	0.77	1.24	12	12	1.1	20.0	31(-1;-4)					
PLANITHERM® XN II (with EASYPRO® on demand)	neutral	82	0.65	0.75	1.26	12	12	1.1	20.0	31(-1;-4)		to be tempered		Yes <sup>5</sup>	
PLANITHERM® XN	neutral	82	0.65	0.75	1.26	11	12	1.1	20.0	31(-1;-4)					
PLANITHERM® ONE II DIAMANT® (with EASYPRO® on demand)	extra neutral	73	0.54	0.62	1.35	22	22	1.0	20.0	31(-1;-4)		to be tempered		Yes <sup>5</sup>	
PLANITHERM® ONE DIAMANT®	extra neutral	73	0.53	0.61	1.38	23	23	1.0	20.0	31(-1;-4)					
PLANITHERM® ONE II (with EASYPRO® on demand)	neutral	72	0.53	0.61	1.36	22	23	1.0	20.0	31(-1;-4)		to be tempered		Yes <sup>5</sup>	
PLANITHERM® ONE	neutral	72	0.52	0.60	1.38	22	23	1.0	20.0	31(-1;-4)					

<sup>4</sup> Solar control coating in contact with PVB modifies performances and aesthetics. Please contact us to get the approved list.

<sup>5</sup> Bending results depend on the process/technology used; trials should be done for validation.

<sup>6</sup> Screen-printing/roller coating/spray/digital printing inks and enamels validation is required.

## Double Glazing Units

coating to be tempered / annealed	color in reflection	light transmission LT <sup>1</sup> [%]	solar factor g-value <sup>1</sup>	shading coefficient SC	selectivity LT / g	reflection outside LRe [%]	reflection inside LRi [%]	Ug-value <sup>2</sup> [W/m <sup>2</sup> K]	weight [kg/m <sup>2</sup> ]	assessed sound reduction index Rw,P (C, Ctr) <sup>3</sup> [dB]	use as mono glazing (coating on #2)	processing possibilities			
												tempering	lamination tested towards PVB <sup>4</sup>	bending <sup>5</sup>	screen-printing & enamelling <sup>6</sup>



### Low-E coating in double glazing unit (4 | 16 | 4 mm, 90% Argon, coating on face #3) on PLANICLEAR<sup>®</sup> or DIAMANT<sup>®</sup>

Values given according to the standards <sup>1</sup>EN 410, <sup>2</sup>EN 673 and <sup>3</sup>EN 12758

ECLAZ <sup>®</sup> II DIAMANT <sup>®</sup>	extra neutral	84	0.73	0.83	1.15	12	12	1.1	20.0	31(-1;-4)		to be tempered			
ECLAZ <sup>®</sup> DIAMANT <sup>®</sup>	extra neutral	85	0.73	0.84	1.16	12	12	1.1	20.0	31(-1;-4)					
ECLAZ <sup>®</sup> II	neutral	83	0.71	0.81	1.17	12	11	1.1	20.0	31(-1;-4)		to be tempered			
ECLAZ <sup>®</sup>	neutral	83	0.71	0.81	1.17	12	11	1.1	20.0	31(-1;-4)					
ECLAZ <sup>®</sup> ONE II DIAMANT <sup>®</sup>	extra neutral	80	0.61	0.71	1.31	16	18	1.0	20.0	31(-1;-4)		to be tempered			
ECLAZ <sup>®</sup> ONE DIAMANT <sup>®</sup>	extra neutral	81	0.62	0.71	1.31	15	16	1.0	20.0	31(-1;-4)					
ECLAZ <sup>®</sup> ONE II	neutral	79	0.60	0.69	1.32	16	18	1.0	20.0	31(-1;-4)		to be tempered			
ECLAZ <sup>®</sup> ONE	neutral	80	0.60	0.69	1.33	15	16	1.0	20.0	31(-1;-4)					



### BIOCLEAR<sup>®</sup> in double glazing unit (6 | 16 | 4 mm, 90% Argon) on PLANICLEAR<sup>®</sup> for easy maintenance

Values given according to the standards <sup>1</sup>EN 410, <sup>2</sup>EN 673 and <sup>3</sup>EN 12758

BIOCLEAR <sup>®</sup> II	neutral	79	0.76	0.87	1.04	18	18	2.6	25.0	35(-1;-5)		to be tempered			
BIOCLEAR <sup>®</sup>	neutral	77	0.74	0.85	1.04	17	17	2.6	25.0	35(-1;-5)					
<b>NEW</b> BIOCLEAR <sup>®</sup> XTREME 61/29	neutral	57	0.27	0.31	2.11	14	15	1.0	25.0	35(-1;-5)					
BIOCLEAR <sup>®</sup> SKN 183	neutral	70	0.37	0.43	1.89	15	15	1.0	25.0	35(-1;-5)					
BIOCLEAR <sup>®</sup> SKN 176	neutral	66	0.35	0.40	1.89	16	17	1.0	25.0	35(-1;-5)					
BIOCLEAR <sup>®</sup> SKN 165	neutral	57	0.32	0.37	1.78	19	19	1.0	25.0	35(-1;-5)					
BIOCLEAR <sup>®</sup> SKN 154	neutral	49	0.26	0.30	1.88	21	23	1.0	25.0	35(-1;-5)					
BIOCLEAR <sup>®</sup> SKN 145	neutral	39	0.21	0.24	1.86	21	16	1.1	25.0	35(-1;-5)					

<sup>4</sup> Solar control coating in contact with PVB modifies performances and aesthetics. Please contact us to get the approved list.

<sup>5</sup> Bending results depend on the process/ technology used; trials should be done for validation.

<sup>6</sup> Screen-printing/roller coating/spray/digital printing inks and enamels validation is required.

## Monolithic and Laminated Glass

coating to be tempered / annealed	color in reflection	light transmission LT <sup>1</sup> [%]	solar factor g-value <sup>1</sup>	shading coefficient SC	selectivity LT / g	reflection outside LRe [%]	reflection inside LRi [%]	Ug-value <sup>2</sup> [W/m <sup>2</sup> K]	weight [kg/m <sup>2</sup> ]	assessed sound reduction index Rw,P (C, Ctr) <sup>3</sup> [dB]	Description / processing possibilities
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### VISION-LITE<sup>®</sup> on DIAMANT<sup>®</sup> for anti-reflectance (STADIP<sup>®</sup> (Laminated glass) and Monolithic glass)

Values given according to the standards <sup>1</sup>EN 410, <sup>2</sup>EN 673 and <sup>3</sup>EN 12758

STADIP <sup>®</sup> VISION-LITE <sup>®</sup> (laminated glass 44.2) DIAMANT <sup>®</sup>	extra neutral	97	0.84	0.97	1.15	1	1	5.5	20.0	34(-1;-2)	VISION-LITE coating on faces #1 and #4 of laminated glass
VISION-LITE <sup>®</sup> II DIAMANT <sup>®</sup> (6 mm)	extra neutral	98	0.87	0.99	1.13	1	1	5.7	15.0	32(-1;-2)	VISION-LITE coating on both sides (#1 & #2) of monolithic glass - to be tempered
Semi VISION-LITE <sup>®</sup> II DIAMANT <sup>®</sup> (6 mm)	extra neutral	94	0.88	1.01	1.07	5	5	5.7	15.0	32(-1;-2)	VISION-LITE coating on one side of the glass - to be tempered / to be laminated
Semi VISION-LITE <sup>®</sup> DIAMANT <sup>®</sup> (6 mm)	extra neutral	94	0.89	1.03	1.06	5	5	5.7	15.0	32(-1;-2)	VISION-LITE coating on one side of the glass - to be laminated

## Triple Glazing Units

coating	color in reflection	light transmission LT <sup>1</sup> [%]	solar factor g-value <sup>1</sup>	shading coefficient SC	selectivity LT / g	reflection outside LRe [%]	reflection inside LRI [%]	Ug-value <sup>2</sup> [W/m <sup>2</sup> K]	weight [kg/m <sup>2</sup> ]	assessed sound reduction index Rw,P (C, Ctr) <sup>3</sup> [dB]	use as mono glazing (coating on #2)	processing possibilities			
												tempering	lamination tested towards PVB <sup>4</sup>	bending <sup>5</sup>	screen-printing & enamelling <sup>6</sup>



**Extremely selective solar control coating with reinforced thermal insulation**

**COOL-LITE® XTREME in triple glazing unit (6 | 12 | 4 | 12 | 4 mm, 90% Argon, coating on face #2 with PLANITHERM® XN on face #5) on PLANICLEAR® or DIAMANT®**

Values given according to the standards <sup>1</sup>EN 410, <sup>2</sup>EN 673 and <sup>3</sup>EN 12758

COOL-LITE® XTREME 70/33 II DIAMANT® with EASYPRO®	extra neutral	65	0.31	0.36	2.10	13	16	0.7	35.0	36(-1;-5)		to be tempered		Yes <sup>5</sup>	
COOL-LITE® XTREME 70/33 DIAMANT®	extra neutral	65	0.31	0.36	2.10	13	16	0.7	35.0	36(-1;-5)					
COOL-LITE® XTREME 70/33 II with EASYPRO®	neutral	63	0.31	0.35	2.03	13	16	0.7	35.0	36(-1;-5)		to be tempered		Yes <sup>5</sup>	
COOL-LITE® XTREME 70/33	neutral	63	0.31	0.35	2.03	13	16	0.7	35.0	36(-1;-5)					
<b>NEW</b> COOL-LITE® XTREME 61/29 II DIAMANT® with EASYPRO®	extra neutral	57	0.28	0.32	2.04	13	18	0.7	35.0	36(-1;-5)		to be tempered			
<b>NEW</b> COOL-LITE® XTREME 61/29 DIAMANT®	extra neutral	57	0.28	0.32	2.04	13	17	0.7	35.0	36(-1;-5)					
<b>NEW</b> COOL-LITE® XTREME 61/29 II with EASYPRO®	neutral	55	0.27	0.31	2.04	13	17	0.7	35.0	36(-1;-5)		to be tempered			
<b>NEW</b> COOL-LITE® XTREME 61/29	neutral	55	0.27	0.31	2.04	13	16	0.7	35.0	36(-1;-5)					
COOL-LITE® XTREME SILVER II DIAMANT®	bright silver	46	0.24	0.27	1.92	31	20	0.7	35.0	36(-1;-5)		to be tempered		Yes <sup>5</sup>	
COOL-LITE® XTREME SILVER II	Silver	45	0.23	0.27	1.96	30	20	0.7	35.0	36(-1;-5)		to be tempered		Yes <sup>5</sup>	
COOL-LITE® XTREME 50/22 II DIAMANT® with EASYPRO®	extra neutral	44	0.20	0.23	2.20	17	20	0.7	35.0	36(-1;-5)		to be tempered		Yes <sup>5</sup>	
COOL-LITE® XTREME 50/22 II with EASYPRO®	neutral	43	0.19	0.22	2.26	17	20	0.7	35.0	36(-1;-5)		to be tempered		Yes <sup>5</sup>	



**Highly selective solar control coating with reinforced thermal insulation**

**COOL-LITE® SKN in triple glazing unit (6 | 12 | 4 | 12 | 4 mm, 90% Argon, coating on face #2 with PLANITHERM® XN on face #5) on PLANICLEAR® or DIAMANT®**

Values given according to the standards <sup>1</sup>EN 410, <sup>2</sup>EN 673 and <sup>3</sup>EN 12758

COOL-LITE® SKN 083 II with EASYPRO®	extra neutral	69	0.38	0.44	1.82	15	16	0.7	35.0	36(-1;-5)		to be tempered		Yes <sup>5</sup>	
COOL-LITE® SKN 083	extra neutral	69	0.38	0.44	1.82	15	16	0.7	35.0	36(-1;-5)					
COOL-LITE® SKN 183 II with EASYPRO®	neutral	68	0.37	0.43	1.84	14	16	0.7	35.0	36(-1;-5)		to be tempered		Yes <sup>5</sup>	
COOL-LITE® SKN 183	neutral	68	0.37	0.43	1.84	14	16	0.7	35.0	36(-1;-5)					
COOL-LITE® SKN 076 II with EASYPRO®	extra neutral	65	0.35	0.37	1.86	15	18	0.7	35.0	36(-1;-5)		to be tempered	Yes <sup>8</sup>	Yes <sup>5</sup>	
COOL-LITE® SKN 076	extra neutral	65	0.35	0.41	1.86	15	18	0.7	35.0	36(-1;-5)					
COOL-LITE® SKN 176 II with EASYPRO®	neutral	64	0.34	0.40	1.88	15	17	0.7	35.0	36(-1;-5)		to be tempered	Yes <sup>8</sup>	Yes <sup>5</sup>	
COOL-LITE® SKN 176	neutral	64	0.34	0.40	1.88	15	17	0.7	35.0	36(-1;-5)					
COOL-LITE® SKN 065 II with EASYPRO®	extra neutral	57	0.32	0.37	1.78	18	21	0.7	35.0	36(-1;-5)		to be tempered	Yes <sup>8</sup>	Yes <sup>5</sup>	
COOL-LITE® SKN 065	extra neutral	57	0.32	0.37	1.78	18	20	0.7	35.0	36(-1;-5)			Yes <sup>8</sup>		
COOL-LITE® SKN 165 II with EASYPRO®	neutral	55	0.31	0.36	1.77	18	20	0.7	35.0	36(-1;-5)		to be tempered	Yes <sup>8</sup>	Yes <sup>5</sup>	
COOL-LITE® SKN 165	neutral	55	0.32	0.36	1.72	18	20	0.7	35.0	36(-1;-5)			Yes <sup>8</sup>		
COOL-LITE® SKN 054 II with EASYPRO®	extra neutral	49	0.27	0.31	1.81	19	24	0.7	35.0	36(-1;-5)		to be tempered	Yes <sup>8</sup>	Yes <sup>5</sup>	
COOL-LITE® SKN 054	extra neutral	49	0.27	0.31	1.81	20	24	0.7	35.0	36(-1;-5)			Yes <sup>8</sup>		
COOL-LITE® SKN 154 II with EASYPRO®	neutral	47	0.26	0.30	1.81	19	23	0.7	35.0	36(-1;-5)		to be tempered	Yes <sup>8</sup>	Yes <sup>5</sup>	
COOL-LITE® SKN 154	neutral	47	0.26	0.30	1.81	20	23	0.7	35.0	36(-1;-5)			Yes <sup>8</sup>		
COOL-LITE® SKN 045	neutral	38	0.21	0.24	1.81	20	18	0.7	35.0	36(-1;-5)					
COOL-LITE® SKN 145	neutral	37	0.20	0.23	1.85	20	17	0.7	35.0	36(-1;-5)					
COOL-LITE® SKN 044 II with EASYPRO®	extra neutral	39	0.21	0.25	1.86	22	18	0.7	35.0	36(-1;-5)		to be tempered	Yes <sup>8</sup>		
COOL-LITE® SKN 144 II with EASYPRO®	neutral	38	0.21	0.24	1.81	21	17	0.7	35.0	36(-1;-5)		to be tempered	Yes <sup>8</sup>		

<sup>4</sup> Solar control coating in contact with PVB modifies performances and aesthetics. Please contact us to get the approved list.

<sup>5</sup> Bending results depend on the process/technology used; trials should be done for validation.

<sup>6</sup> Screen-printing/roller coating/spray/digital printing inks and enamels validation is required.



<sup>7</sup> COOL-LITE® SKN 154 may have a slight color deviation in transmission compared to SKN 154 II. Validation by Mock-up is recommended if both versions are used on the same facade.

<sup>8</sup> This coating can be laminated for use on a facade up to 1.500m<sup>2</sup> and project must be made from a single production batch from SGG.





## Triple Glazing Units

coating	color in reflection	light transmission LT <sup>1</sup> [%]	solar factor g-value <sup>1</sup>	shading coefficient SC	selectivity LT / g	reflection outside LRe [%]	reflection inside Lri [%]	Ug-value <sup>2</sup> [W/m <sup>2</sup> K]	weight [kg/m <sup>2</sup> ]	assessed sound reduction index Rw,P (C, Ctr) <sup>3</sup> [dB]	use as mono glazing (coating on #2)	processing possibilities			
												tempering	lamination tested towards PVB <sup>4</sup>	bending <sup>5</sup>	screen-printing & enamelling <sup>6</sup>

  **Selective solar control coating with reinforced thermal insulation**  
**COOL-LITE® K in triple glazing unit (6 | 12 | 4 | 12 | 4 mm, 90% Argon, coating on face #2 with PLANITHERM® XN on face #5) on PLANICLEAR®**  
 Values given according to the standards <sup>1</sup>EN 410, <sup>2</sup>EN 673 and <sup>3</sup>EN 12758


COOL-LITE® KN 166 II with EASYPRO®	neutral	55	0.35	0.40	1.57	23	26	0.7	35.0	36(-1;-5)		to be tempered			
COOL-LITE® KN 148 II with EASYPRO®	neutral	43	0.28	0.32	1.54	28	20	0.7	35.0	36(-1;-5)		to be tempered			

  **Selective solar control coating with thermal insulation**  
**COOL-LITE® K in triple glazing unit (6 | 12 | 4 | 12 | 4 mm, 90% Argon, coating on face #2 with PLANITHERM® XN on face #3 and #5) on PLANICLEAR®**  
 Values given according to the standards <sup>1</sup>EN 410, <sup>2</sup>EN 673 and <sup>3</sup>EN 12758

COOL-LITE® KG 137 tempered	golden	31	0.24	0.28	1.29	33	28	0.7	35.0	36(-1;-5)		to-be-tempered			
COOL-LITE® KG 137 annealed	golden	31	0.24	0.28	1.29	30	26	0.7	35.0	36(-1;-5)					
COOL-LITE® KNT 164	neutral	52	0.37	0.42	1.41	14	11	0.7	35.0	36(-1;-5)		temperable	Yes		
COOL-LITE® KNT 155	neutral	43	0.30	0.35	1.43	17	11	0.7	35.0	36(-1;-5)		temperable	Yes		
COOL-LITE® KNT 140	neutral	34	0.24	0.27	1.42	23	12	0.7	35.0	36(-1;-5)		temperable	Yes		
COOL-LITE® KS 147	silver	39	0.27	0.31	1.44	43	33	0.7	35.0	36(-1;-5)					
COOL-LITE® KS 146 II	silver	39	0.26	0.29	1.50	33	18	0.7	35.0	36(-1;-5)		to-be-tempered			
COOL-LITE® KS 138 II	silver	33	0.22	0.26	1.50	39	19	0.7	35.0	36(-1;-5)		to-be-tempered			

  **Solar control glass offering full flexibility for processing**  
**COOL-LITE® ST in triple glazing unit (6 | 12 | 4 | 12 | 4 mm, 90% Argon, coating on face #2, with PLANITHERM® XN on face #3 and #5) on PLANICLEAR®**  
 Values given according to the standards <sup>1</sup>EN 410, <sup>2</sup>EN 673 and <sup>3</sup>EN 12758

COOL-LITE® ST BRIGHT SILVER DIAMANT®	silver	58	0.45	0.52	1.29	34	31	0.7	35.0	36(-1;-5)	Yes	temperable	Yes	Yes <sup>5</sup>	Yes
COOL-LITE® ST BRIGHT SILVER	silver	56	0.44	0.50	1.27	33	30	0.7	35.0	36(-1;-5)	Yes	temperable	Yes	Yes <sup>5</sup>	Yes
COOL-LITE® ST 167	neutral	55	0.42	0.48	1.31	22	22	0.7	35.0	36(-1;-5)	Yes	temperable	Yes	Yes <sup>5</sup>	Yes
COOL-LITE® ST 150	neutral	42	0.33	0.37	1.27	20	21	0.7	35.0	36(-1;-5)	Yes	temperable	Yes	Yes <sup>5</sup>	Yes
COOL-LITE® ST 136	grey	31	0.24	0.27	1.29	23	21	0.7	35.0	36(-1;-5)	Yes	temperable	Yes		Yes
COOL-LITE® ST 120	silver	17	0.15	0.17	1.13	32	27	0.7	35.0	36(-1;-5)	Yes	temperable	Yes		Yes
COOL-LITE® STB 136	blue	30	0.24	0.27	1.25	19	19	0.7	35.0	36(-1;-5)	Yes	temperable	Yes		Yes
COOL-LITE® STB 120	blue	18	0.15	0.18	1.20	21	29	0.7	35.0	36(-1;-5)	Yes	temperable	Yes		Yes

 **Low-E coating in triple glazing unit (4 | 12 | 4 | 12 | 4 mm, 90% Argon, coating on face #2, with PLANITHERM® XN on face #5) on PLANICLEAR® or DIAMANT®**  
 Values given according to the standards <sup>1</sup>EN 410, <sup>2</sup>EN 673 and <sup>3</sup>EN 12758

PLANITHERM® XN II DIAMANT® (with EASYPRO® on demand)	extra neutral	76	0.56	0.64	1.36	15	15	0.7	30.0	32(-1;-5)		to be tempered		Yes <sup>5</sup>	
PLANITHERM® XN DIAMANT®	extra neutral	76	0.56	0.64	1.36	15	15	0.7	30.0	32(-1;-5)					
PLANITHERM® XN II (with EASYPRO® on demand)	neutral	74	0.54	0.62	1.37	14	14	0.7	30.0	32(-1;-5)		to be tempered		Yes <sup>5</sup>	
PLANITHERM® XN	neutral	74	0.54	0.62	1.37	14	14	0.7	30.0	32(-1;-5)					
PLANITHERM® ONE II DIAMANT® (with EASYPRO® on demand)	extra neutral	67	0.47	0.54	1.43	26	24	0.7	30.0	32(-1;-5)		to be tempered		Yes <sup>5</sup>	
PLANITHERM® ONE DIAMANT®	extra neutral	67	0.45	0.52	1.49	26	24	0.7	30.0	32(-1;-5)					
PLANITHERM® ONE II (with EASYPRO® on demand)	neutral	65	0.45	0.52	1.44	25	23	0.7	30.0	32(-1;-5)		to be tempered		Yes <sup>5</sup>	
PLANITHERM® ONE	neutral	65	0.44	0.50	1.48	25	23	0.7	30.0	32(-1;-5)					

<sup>4</sup> Solar control coating in contact with PVB modifies performances and aesthetics. Please contact us to get the approved list.

<sup>5</sup> Bending results depend on the process/ technology used; trials should be done for validation.

<sup>6</sup> Screen-printing/ roller coating/ spray/ digital printing inks and enamels validation is required.



## Triple Glazing Units

coating	color in reflection	light transmission LT <sup>1</sup> [%]	solar factor g-value <sup>1</sup>	shading coefficient SC	selectivity LT / g	reflection outside LRe [%]	reflection inside LRi [%]	Ug-value <sup>2</sup> [W/m <sup>2</sup> K]	weight [kg/m <sup>2</sup> ]	assessed sound reduction index Rw,P (C, Ctr) <sup>3</sup> [dB]	use as mono glazing (coating on #2)	processing possibilities			
												tempering	lamination tested towards PVB <sup>4</sup>	bending <sup>5</sup>	screen-printing & enamelling <sup>6</sup>



**Low-E coating in triple glazing unit (4 | 12 | 4 | 12 | 4 mm, 90% Argon, coating on face #2, with PLANITHERM<sup>®</sup> XN on face #5) on PLANICLEAR<sup>®</sup> or DIAMANT<sup>®</sup>**  
 Values given according to the standards <sup>1</sup>EN 410, <sup>2</sup>EN 673 and <sup>3</sup>EN 12758

ECLAZ <sup>®</sup> II DIAMANT <sup>®</sup>	extra neutral	77	0.58	0.66	1.33	14	15	0.7	30.0	32(-1;-5)		to be tempered			
ECLAZ <sup>®</sup> DIAMANT <sup>®</sup>	extra neutral	77	0.59	0.67	1.31	15	15	0.7	30.0	32(-1;-5)					
ECLAZ <sup>®</sup> II	neutral	75	0.56	0.64	1.34	14	15	0.7	30.0	32(-1;-5)		to be tempered			
ECLAZ <sup>®</sup>	neutral	76	0.57	0.65	1.33	14	15	0.7	30.0	32(-1;-5)					
ECLAZ <sup>®</sup> ONE II DIAMANT <sup>®</sup>	extra neutral	73	0.51	0.58	1.43	20	18	0.7	30.0	32(-1;-5)		to be tempered			
ECLAZ <sup>®</sup> ONE DIAMANT <sup>®</sup>	extra neutral	74	0.51	0.59	1.45	19	17	0.7	30.0	32(-1;-5)					
ECLAZ <sup>®</sup> ONE II	neutral	71	0.49	0.57	1.45	20	18	0.7	30.0	32(-1;-5)		to be tempered			
ECLAZ <sup>®</sup> ONE	neutral	72	0.49	0.57	1.47	18	17	0.7	30.0	32(-1;-5)					



**BIOCLEAR<sup>®</sup> in triple glazing unit (6 | 12 | 4 | 12 | 4 mm, 90% Argon, with PLANITHERM<sup>®</sup> XN on face #5) on PLANICLEAR<sup>®</sup> for easy maintenance**  
 Values given according to the standards <sup>1</sup>EN 410, <sup>2</sup>EN 673 and <sup>3</sup>EN 12758

BIOCLEAR <sup>®</sup> II	neutral	72	0.57	0.66	1.26	20	19	1.0	35.0	36(-1;-5)		to be tempered			
BIOCLEAR <sup>®</sup>	neutral	70	0.56	0.64	1.25	20	19	1.0	35.0	36(-1;-5)					
<b>NEW</b> BIOCLEAR <sup>®</sup> XTREME 61/29	neutral	52	0.25	0.29	2.08	15	17	0.7	35.0	36(-1;-5)					
BIOCLEAR <sup>®</sup> SKN 183	neutral	64	0.35	0.40	1.83	17	17	0.7	35.0	36(-1;-5)					
BIOCLEAR <sup>®</sup> SKN 176	neutral	60	0.32	0.37	1.88	17	19	0.7	35.0	36(-1;-5)					
BIOCLEAR <sup>®</sup> SKN 165	neutral	52	0.30	0.34	1.73	20	21	0.7	35.0	36(-1;-5)					
BIOCLEAR <sup>®</sup> SKN 154	neutral	45	0.24	0.28	1.88	22	24	0.7	35.0	36(-1;-5)					
BIOCLEAR <sup>®</sup> SKN 145	neutral	35	0.19	0.22	1.84	22	18	0.7	35.0	36(-1;-5)					

<sup>4</sup> Solar control coating in contact with PVB modifies performances and aesthetics. Please contact us to get the approved list.  
<sup>5</sup> Bending results depend on the process/ technology used; trials should be done for validation.  
<sup>6</sup> Screen-printing/ roller coating/ spray/ digital printing inks and enamels validation is required.

## OUR TECHNICAL SUPPORT



### Professional high level of service is our priority.

We offer tailor-made advisory about glass products and technical solutions.

Static calculations: deflection and stress calculation are performed for different types of glazing under permanent and variable loads combination.

Thermal stress analysis: calculation of maximum temperatures and analysis of the risks of thermal breakage.

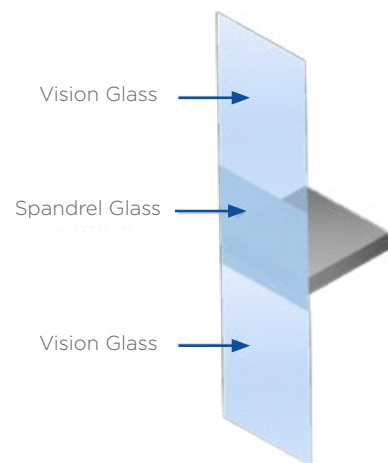
Acoustic calculations: computation of sound transmission loss and calculation acoustic insulation parameters.

Spectrophotometric calculations: the most important glazing parameters such as light transmission, light reflection, energy absorption, Ug, etc.

Daylight analysis and energy simulation: penetration of natural light on the building floor plan or at working plane level.

If you want more information, please contact us at: [bgp@saint-gobain.com](mailto:bgp@saint-gobain.com)

# SPANDRELS



**Spandrel glass or „non-vision glass” are used on several buildings to conceal essential components that no one wants to see** and are typically located below or on top of the vision glass on each floor of the building.

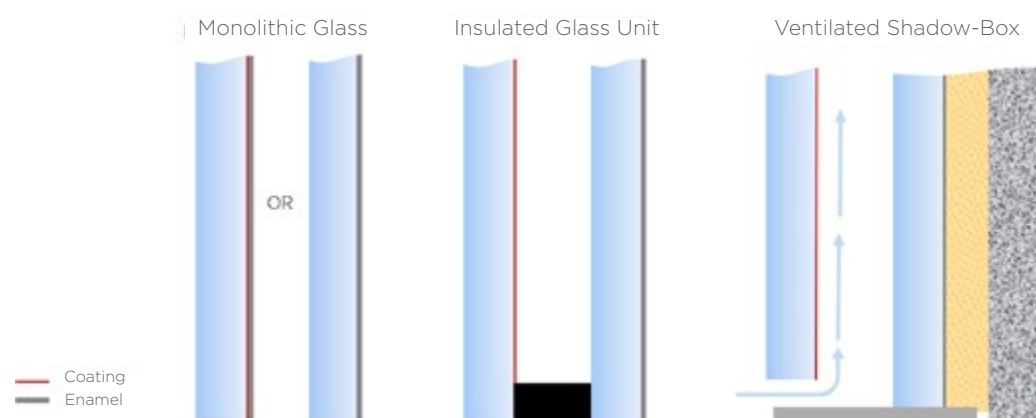
**Spandrel made of glass are often used to have a continuous, smooth fully glazed façade.** The spandrel glass can be complementary or contrasting in color when compared to the appearance of the vision glass.

**Whatever the aesthetic sought, Saint-Gobain offers complete services to achieve the desired design** and propose spandrel glass harmonized to vision glass in order to assure the homogeneity and the full beauty of the façade.

The main component of glass spandrel is the opaque colored glass, comprising uniform enameling on one side of the glass. There are several kinds of spandrel, all presenting some advantages or drawbacks (cost, flexibility, aesthetic, maintenance, thermal performance...).

In the following we are considering 3 configurations:

- a **monolithic glass** which may comprise a COOL-LITE® ST or ST Bright Silver coating with enamel on #2
- an **insulated glazing unit (IGU)** with Saint-Gobain solar control coatings on #2 and enamel on #4
- a **“Shadow Box”** configuration with ventilated cavity, of similar composition comparable to the IGU.



## ENAMELING ON COOL-LITE® SOLAR CONTROL COATINGS

Enamels are firstly developed for printing on standard raw soda-lime based float glass. During the tempering process of the glass, the enamels melt and fuse permanently to the glass surface to form a colored ceramic layer. For some applications, there may be a need of enameling coated glass, among others glass spandrels. The processing possibilities are given in the products tables (page 6 to 17). Hereafter a summary for our main COOL-LITE® products families.

COOL-LITE® Family	Enameling and Silk-Printing <sup>7</sup>
COOL-LITE® ST & STB	Can be enameled <sup>8</sup>
COOL-LITE® ST BRIGHT SILVER	Can be enameled <sup>8</sup> , <b>however</b> , it is not recommended to print COOL-LITE® ST BRIGHT SILVER with dark ceramic paint colors
COOL-LITE® KN II, KNT, SKN II and XTREME II	No common approval for the enameling of silver-based high performance coatings from the COOL-LITE® KN II, KNT, SKN II or XTREME II range

<sup>7</sup> The processor is responsible for the quality control and quality of the final product. Given the variety of enameling products, different operations and practical experiences, each processor should carry out tests with its own equipment.

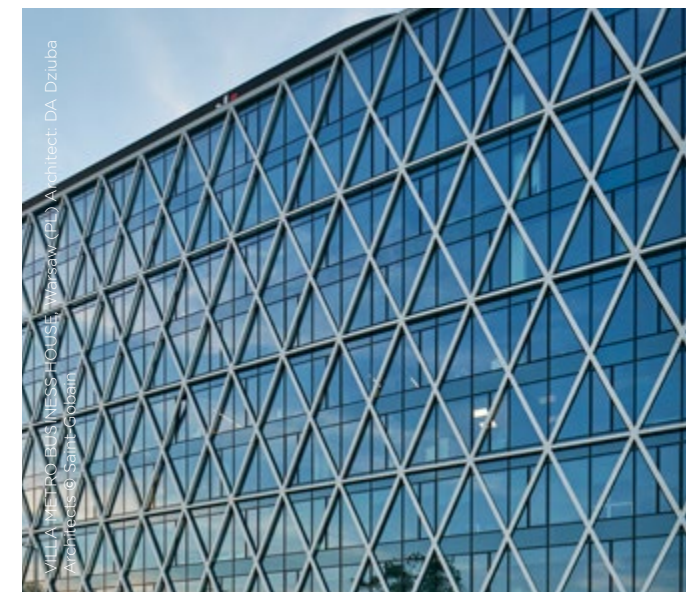
<sup>8</sup> Contact Saint-Gobain's technical support team for further information and assistance

Ask us for the processing guidelines for our COOL-LITE® ST, KN (II), SKN (II) or XTREME (II).

Depending of the desired design of the building, the spandrels can have different «look» and «match» with the vision glass in order to achieve an uninterrupted, pure glass facade, simply harmonized with it or inversely fully contrasted for offering to the facade an original rythmed design.

In order to accelerate the decision proces and reduce the number of mock-ups, Saint-Gobain have defined a set of **propositions of spandrels harmonizing with the vision glass for the 3 configurations mentioned before.**

For each solar control coated glass from the COOL-LITE® SKN (II) and XTREME (II) families, proposition are defined by a coating and the color of the enameled glass (referenced by its RAL) based on a methodology developed by Saint-Gobain<sup>9</sup>.



VISION GLASS (standard double glazing unit with coating on #2)	SPANDREL INSULATED GLAZING UNIT (as illustrated page 18)	SPANDREL VENTILATED SHADOW BOX (as illustrated page 18)	SPANDREL MONOLITHIC GLASS (as illustrated page 18)
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### COOL-LITE® XTREME (II) PRODUCTS

XTREME 70/33 (II)	COOL-LITE® XTREME 70/33 II & PLANICLEAR® RAL 7024 or 7026	- <sup>9</sup>	COOL-LITE® ST167 with RAL 5008
XTREME 61/29 (II)	COOL-LITE® XTREME 61/29 II & PLANICLEAR® RAL 7015 or 7026	COOL-LITE® ST167 & PLANICLEAR® RAL 7021	COOL-LITE® ST167 with RAL 7026
XTREME 50/22 II	COOL-LITE® XTREME 50/22 II & PLANICLEAR® RAL 5008 or 7026	COOL-LITE® ST150 & PLANICLEAR® RAL 7026	- <sup>9</sup>
XTREME SILVER II	COOL-LITE® STBS & PLANICLEAR® RAL 5008 or 7026	COOL-LITE® STBS & PLANICLEAR® RAL 5008	COOL-LITE® STBS with RAL 5008

### COOL-LITE® SKN (II) PRODUCTS

SKN 183 (II)	COOL-LITE® SKN 183 II & PLANICLEAR® RAL 7012 or 7015	- <sup>9</sup>	COOL-LITE® ST150 with RAL 7015
SKN 176 (II)	COOL-LITE® SKN 176 II & PLANICLEAR® RAL 7024 or 7026	- <sup>9</sup>	COOL-LITE® ST150 with RAL 7015
SKN 165 (II)	COOL-LITE® SKN 165 II & PLANICLEAR® RAL 7024 or 7026	COOL-LITE® ST150 & PLANICLEAR® with RAL 7021	- <sup>9</sup>
SKN 154 (II)	COOL-LITE® SKN 154 II & PLANICLEAR® RAL 5008 or 7026	COOL-LITE® ST150 & PLANICLEAR® with RAL 5008	COOL-LITE® ST150 with RAL 7012

<sup>9</sup> So-called “matching” between spandrel and vision glass is a subjective process and is likely to change depending on the observer as well as external conditions. The suggestions presented here are the best results obtain today based on compatibility and existing product range but are not the only possibilities; for some configuration no satisfying solution can be presented here. It is always recommended to proceed to real observation based on Mock-up.



Accurate predictive physico-realistic rendering helps to refine the choice in specifying and designing with glass for the building facade. It also allows to reduce the influence of the lighting and environmental conditions as well as save time and money. Pictures of the above propositions are now available using Saint-Gobain GlassPro's technology.

With GlassPro Live, Saint-Gobain's on-demand service of glass facade rendering, Architects are allowed to appreciate the look of coated glass as well as spandrels on their own project, as if it was real, before it's even build, with more possibilities in the spandrels configurations.

**For more information, contact your local sales and specifier team.**



## OUR SERVICES AND TOOLS

### GLASSPRO - The Virtual Rendering of Coated Glass

The GlassPro app and GlassPro Live are unique services of Saint-Gobain, bringing new perspectives on building design and glazing prototyping through digital simulation. Accurate predictive glass façade 3D physico-realistic rendering reduces the need for physical glass mock-ups, which opens the door to a more sustainable approach for prototyping, and accelerates the decision-making process with regards to selecting the ideal glazing with the desired aesthetics corresponding to your design intention.



#### GLASSPRO App - The iPad application

GLASSPRO app is an application for Apple iPad which enables the user to visualize virtually all Saint-Gobain's standard glazing products on a standard building façade.

**Choose and compare two types of glazing** with a personalized rendering of a glazing product under a variety of lightning conditions and several interior design settings through two different environments (urban and countryside to avoid representative issues).

This app, **downloadable on the Apple store** shows an accurate and realistic virtual rendering, based on physical properties of the glass.



#### GLASSPRO Live - The on-demand service

GLASSPRO Live is Saint-Gobain's on-demand service of glass facade rendering. It allows architects to appreciate the look of Saint-Gobain Glazing products on their own building, as if it was real, before it's even built!

**Ask for your glazing configuration** to be represented under a variety of lightning conditions and several interior design settings thanks to our 2 scenes just like in the app. With our on-demand service, you can also ask for us to stimulates a realistic image of different glazing products on your own building facade.

**Visualize and compare all Saint-Gobain glazing products** on high definition 3D synthesis images called "physico-realistic" under a variety of lightning conditions and even on your own building 3D rendering.

To request the service, please **contact your local sales and specifier team**.

### Website SAINT-GOBAIN GLASS



Discover our product range to find the ideal glass for your project which responds the best to your expectations.

Find also our services, the apps and calculation tools you need in the website [www.saint-gobain-glass.pl](http://www.saint-gobain-glass.pl)

You may select your area/country to have our local offer and dedicated products

### INSTAGLASS - The Reference Project Website for Glass Facades



**Come and explore our architectural references** showing a wide range of glass solutions, innovations and aesthetic options for the building envelope.

**Discover inspirational sustainable design** of living spaces and distinctive building that make our environment worth living in

[www.saint-gobain-glass.com/instaglass](http://www.saint-gobain-glass.com/instaglass)

### CALUMEN: The Reference of Calculation



**Determine the light, energy, thermal or acoustic performances of your glazing;** or to find a suitable glazing for your project based on its performance values.

**Personalize settings** such as type of glazing, type of coating, glass and cavity thickness.

**Specify a project, make comparisons** between our products, change the configurations and obtain the right product.

CalumenLive is available on [www.calumenlive.com](http://www.calumenlive.com)

### CALUWIN: Comfort by numbers



**Calculate quickly and easily:**

- The whole U-value (Uw value)
- Surface temperatures
- The condensation risk in the glass edge area
- Energy savings thanks to warm edge spacer

Caluwin is available on [www.caluwin.com](http://www.caluwin.com)

### GLASS VISION: The realistic online tool for deco and design glass



GLASS VISION supports you online in finding your first ideas - quickly, easily, free of charge and without registration.

The inspiration tool includes many classic interior scenarios for both private homes and commercial properties, as well as numerous materials, colours and styles of furnishing.

Choose between kitchen, living room, bathroom, office, retail, hotel lobby and hotel rooms, and with just a few clicks test which colours, glasses and textures go best together there.

[www.saint-gobain-glass.com/visualizer](http://www.saint-gobain-glass.com/visualizer)

### GREEN BUILDING WEBSITE: For sustainable habitat



**Discover how all Saint-Gobain products and solutions** can contribute to achieving credits in green building certifications.

**Explore our certifications** among different international labels such as LEED, BREEAM, DGNB, HQE or even WELL.

**Find all the needed documentation for certification process.** Saint-Gobain solutions covers numerous applications such as facades, ceilings, floors, foundations, roofs, walls, and many others.

[www.greenbuilding.saint-gobain.com](http://www.greenbuilding.saint-gobain.com)

We are an international organisation, with an ambition to care for the good of the planet as much as to supply solutions improving comfort of living in houses, apartments, and offices – that is wherever there is life.

## MAKING THE WORLD A BETTER HOME

Our goal is to call to action, which we always consider in a long-term perspective. For the common good, we implement innovations, aiming to contribute to creating a sustainable world for people and nature.

We want the world we live in to become an increasingly friendlier home for all mankind, while respecting biodiversity and climate. That is why we take one step after another in efforts to contribute to changes for the better. We want to reach climate neutrality by 2050, because we believe that it is our duty to be an example of an effective fight with progressing changes in the environment.

### SAINT-GOBAIN GLASS

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POLAND

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[bgp@saint-gobain.com](mailto:bgp@saint-gobain.com)



Saint-Gobain Glass issued 18 verified Environmental Product Declarations (EPD) covering actually more than 165 different products.

They describe in detail the glazing's environmental footprint, from raw material extraction to exiting the plant. Today, this is one of the key requirements for green building certificates like LEED, BREEAM, DGNB and HQE.