

SGG CLIMAPLUS[®]
SOLAR

*Solar control and low-emissivity
double-glazed units*

Technical Sheet
United Kingdom

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Description

SGG CLIMAPLUS SOLAR CONTROL low-emissivity solar control double-glazed units are designed to ensure the additional function of solar control, that is, a reduction in solar heat gain and varying degree of light transmittance. The outer pane of the double-glazed unit is a SAINT-GOBAIN GLASS COMFORT solar control glass. The low-emissivity function is either provided by the solar control glass itself (SGG COOL-LITE K or SK), or by the inner pane (using an enhanced thermally insulating glass from the SGG PLANITHERM range).

SGG CLIMAPLUS SOLAR CONTROL is manufactured in accordance with the SAINT-GOBAIN GLASS CLIMALIT process, whereby two panes of glass are assembled vertically on either side of a hollow aluminium spacer bar filled with desiccant, then hermetically sealed using the latest dual seal technology.

If the unit does not incorporate a low-emissivity glass, it is known as SGG CLIMALIT SOLAR CONTROL.



*Katstan, Stockholm, Sweden
Architects : White arkitekten AB, Stockholm*

Applications

- Offices and commercial buildings
- Industrial buildings
- Hotels and restaurants
- Schools and hospitals
- In the home (windows, conservatories)

SGG CLIMAPLUS SOLAR CONTROL double-glazed units can be used in façades and roofs, depending on the different assemblies that are available:

- windows in traditional façades
- traditional curtain walling
- exterior structural sealant glazing for curtain walling
- structural glass in exterior glass bolted assemblies.

Advantages

The solar control function of SGG CLIMAPLUS SOLAR CONTROL double-glazed units provides the following advantages:

- energy savings due to more economical use of air conditioning, thanks to the reduction in direct solar energy.
- limitation of overheating in non-air-conditioned rooms
- improved visual comfort by reducing glare.

SAINT-GOBAIN GLASS offers the widest and most comprehensive selection of solar control glasses, presenting an extensive range of appearance and performance options.

The following products can be used in SGG CLIMAPLUS SOLAR CONTROL units:

- SGG COOL-LITE K and SK
- SGG COOL-LITE ST
- SGG COOL-LITE CLASSIC
- SGG ANTELIO
- SGG PARSOL
- SGG REFLECTASOL
- SGG SERALIT EVOLUTION.

Specific details and characteristics of the different glass options can be found in the relevant sections.

Various compositions are possible. SGG CLIMAPLUS SOLAR CONTROL can incorporate:

- SGG STADIP, SGG STADIP PROTECT, or SGG STADIP SILENCE laminated glass: the solar control coating is usually on face 2, not in contact with the PVB. For details of other configurations, please contact SAINT-GOBAIN GLASS
- SGG SECURIT toughened glass: SGG COOL-LITE ST, SGG ANTELIO and SGG REFLECTASOL can also be toughened from stock. SGG COOL-LITE CLASSIC and SGG COOL-LITE K and SK, must be toughened before the coating is applied. SGG SERALIT EVOLUTION glass is always toughened.

Opaque spandrels

The overall appearance of a fully glazed façade depends on the co-ordination between the vision area glazing and the spandrel area glazing (non-vision areas). The designer may want to create an appearance which is uniform in appearance or with a contrast between two areas.

In both cases, the external appearance of a glazed façade is influenced by:

- whether the sky is clear or cloudy
- the amount of sunshine, linked to the geographical location and time of day
- the orientation of the façade
- the surrounding environment
- the interior of the building (light transmittance level, use of blinds)
- the colour of the external fittings

Choosing spandrel area glazing

For a façade with a uniform appearance, SAINT-GOBAIN GLASS provides spandrel panels which offer the best match with vision area glazing. However, before being approved by the designer, it is strongly recommended that vision area glazing and spandrel area samples are viewed in their intended location. The characteristics of SAINT-GOBAIN GLASS spandrels are described in the SGG COOL-LITE and SGG ANTELIO sections.

SGG CLIMAPLUS SOLAR CONTROL : examples of double-glazed unit combinations	
Exterior glass	Interior glass
SGG ANTELIO	Low-emissivity glass from the SGG PLANITHERM range (coating on face 3)
SGG COOL-LITE CLASSIC	
SGG COOL-LITE ST	
SGG REFLECTASOL	
SGG SERALIT	
SGG COOL-LITE K	SGG PLANILUX
SGG COOL-LITE SK	SGG PLANILUX

The range of SGG CLIMAPLUS SOLAR CONTROL double-glazed units provides a wide variety of aesthetic and performance characteristics.

Thermal insulation

An SGG CLIMAPLUS SOLAR CONTROL double-glazed unit is nearly 3 times more thermally efficient than a standard double-glazed unit (U-value can reach as low as 1.1 W/m²K compared to 2.9 W/m²K for an ordinary double-glazed unit).

Reflected visual appearance

All coated glass, even the most neutral, can have a slightly different appearance when viewed in reflection. This is a characteristic that is inherent to the product and depends on the distance and angle of incidence, the ratio between the interior and exterior light level and the type of objects that are reflected on the façade

To assist with the technical and aesthetic requirements of large architectural projects, SAINT-GOBAIN GLASS offers a unique demonstration vehicle, "Solatruck", which carries large sized samples. These are used to view the SAINT-GOBAIN GLASS options in situ and are particularly useful when appearance and light performances are being considered.

SGG CLIMAPLUS COOL-LITE SK

SGG CLIMAPLUS COOL-LITE SK										
Double glazing										
Aesthetic appearance in external reflectance		Neutral			Neutral			Green		
SGG COOL LITE external glass		SKN 172	SKN 165B	SKN 154	SKN 072	SKN 065B	SKN 054	SKN 472	SKN 465B	SKN 454
Interior pane		SGG PLANILUX			SGG DIAMANT			SGG PLANILUX		
Composition		6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6
Solar control and low-emissivity coating position (1)		Face	2	2	2	2	2	2	2	2
Light factor										
LT	%	66	60	50	69	63	53	54	49	41
LRe	%	9	16	18	10	16	18	8	12	13
LRI	%	11	17	20	11	18	21	10	16	19
uv	%	14	9	9	22	15	14	5	4	3
Energy factor										
T	%	36	30	24	41	33	26	25	21	17
Re	%	25	31	32	34	42	43	8	10	11
A1	%	37	37	42	25	24	30	66	68	71
A2	%	3	2	2	1	1	0	2	1	1
Solar factor g		0,40	0,32	0,27	0,43	0,35	0,28	0,30	0,26	0,22
Shading Coefficient SC		0,46	0,38	0,31	0,49	0,0	0,33	0,34	0,29	0,25
U-value		W/(m ² .K)								
Air		1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,4
Argon 90 %		1,2	1,1	1,1	1,2	1,1	1,1	1,2	1,1	1,1

(1) The SGG COOL-LITE K, SK coatings must always be positioned on face 2 of the double-glazed unit (never on face 1).

SGG CLIMAPLUS COOL-LITE K											
Double glazing											
Aesthetic appearance in external reflection		Neutral				Silver	Blue	Green			
SGG COOL LITE external pane		KN 169	KN 155	KN 069	KN 055	KS 147	KB 159	KN 469	KN 455	KS 447	
Interior pane		SGG PLANILUX		SGG DIAMANT		SGG PLANILUX		SGG PLANILUX			
Composition		6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	
Solar control and low-emissivity	face	2	2	2	2	2	2	2	2	2	
Light factor											
LT	%	61	50	64	53	43	52	50	41	35	
LRe	%	17	17	17	18	44	28	13	13	31	
LRi	%	11	10	11	10	40	15	10	10	40	
uv	%	17	18	28	29	11	19	7	7	4	
Energy factor											
T	%	38	33	46	39	25	35	24	21	16	
Re	%	23	22	30	27	45	28	10	10	18	
A1	%	34	42	23	33	27	32	64	68	65	
A2	%	5	4	1	1	3	5	2	2	1	
Solar factor g		0,44	0,38	0,49	0,42	0,29	0,41	0,30	0,27	0,21	
Shading Coefficient SC		0,51	0,44	0,56	0,48	0,33	0,48	0,34	0,31	0,24	
U-value	W/(m ² .K)										
Air		1,5	1,6	1,5	1,6	1,4	1,6	1,5	1,6	1,4	
Argon 90 %		1,3	1,4	1,3	1,4	1,1	1,4	1,3	1,4	1,1	

(1) The SGG COOL-LITE K coating must always be positioned on face 2 of the double-glazed unit (never on face 1).

SGG CLIMAPLUS COOL-LITE ST										
Double glazing										
Aesthetic appearance in external reflectance		Neutral (1)				Blue		Green		
SGG COOL LITE ST external glass		ST 108	ST 120	ST 136	ST 150	STB 120	STB 136	ST 420	ST 436	ST 450
Interior pane		SGG PLANITHERM TOTAL								
Composition		6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6
Solar control coating position (2)	face	2	2	2	2	2	2	2	2	2
Low-emissivity coating position	face	3	3	3	3	3	3	3	3	3
Light factor										
LT	%	7	18	32	44	19	32	14	27	36
LRe	%	44	32	23	19	22	17	23	17	15
LRi	%	34	26	19	18	27	18	26	19	18
uv	%	2	8	13	17	7	12	3	5	6
Energy factor										
T	%	5	12	21	29	12	20	7	13	18
Re	%	38	27	20	19	20	17	13	11	10
A1	%	56	59	54	44	65	58	78	74	69
A2	%	1	3	5	7	3	5	1	2	3
Solar factor g		0,08	0,17	0,28	0,37	0,18	0,27	0,12	0,19	0,24
Shading Coefficient SC		0,10	0,19	0,32	0,43	0,21	0,31	0,14	0,22	0,28
U-value	W/(m ² .K)									
Air		1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,4
Argon 90 %		1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2

(1) Slight Blue, Grey or Silver tint depending on the coating

(2) The SGG COOL-LITE ST coating, must be positioned on face 2 of the single or double-glazed unit (never on face 1).

SGG CLIMAPLUS COOL-LITE CLASSIC

SGG CLIMAPLUS COOL-LITE CLASSIC											
Double glazing											
Appearance in external reflectance		Silver				Neutral Grey	Blue		Pastel Blue		
SGG COOL-LITE CLASSIC external glass		SS 108	SS 114	SS 120	SS 132	SR 132	TB 130	TB 140	PB 108	PB 114	PB 120
Internal glass		SGG PLANITHERM TOTAL				SGG PLANITHERM TOTAL					
Composition		6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6
Position of solar control coating (1)	face	2	2	2	2	2	2	2	2	2	2
Position of low-emissivity coating	face	3	3	3	3	3	3	3	3	3	3
Light factor											
LT	%	7	12	18	28	28	26	35	8	13	17
LRe	%	42	32	24	14	13	17	11	29	25	21
LRi	%	34	34	31	25	25	27	23	32	31	29
uv	%	2	4	6	8	12	7	8	2	4	5
Energy factor											
T	%	5	8	11	18	19	16	22	5	9	12
Re	%	37	29	23	15	13	18	13	24	21	19
A1	%	57	61	63	63	63	63	60	69	68	67
A2	%	1	2	3	5	5	4	5	1	2	3
Solar factor g		0,08	0,13	0,17	0,25	0,26	0,22	0,29	0,10	0,14	0,17
Shading Coefficient SC		0,10	0,15	0,19	0,28	0,31	0,26	0,34	0,11	0,16	0,20
U-value	W/(m ² .K)										
Air		1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,4
Argon 90 %		1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2

(1) The SGG COOL-LITE CLASSIC coating must always be positioned on face 2 of the single or double-glazed unit (never on face 1).

SGG CLIMAPLUS ANTELIO

SGG CLIMAPLUS ANTELIO									
Double glazing									
External pane		SGG ANTELIO SILVER		SGG ANTELIO CLEAR		SGG ANTELIO GREEN		SGG ANTELIO BRONZE	
Internal pane		SGG PLANITHERM TOTAL				SGG PLANITHERM TOTAL			
Composition		mm	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6	6 (16) 6
Position of the solar control	face	1	2	1	2	1	2	1	2
Position of the low-emissivity	face	3	3	3	3	3	3	3	3
Light factor									
LT	%	58	58	40	40	46	46	21	21
LRe	%	33	31	33	27	30	21	32	12
LRi	%	28	29	25	30	20	21	14	30
uv	%	19	19	11	11	8	8	3	3
Energy factor									
T	%	39	39	29	29	24	24	16	16
Re	%	35	32	35	29	24	13	30	14
Ri	%	16	19	29	34	48	58	50	65
A1	%	9	10	8	8	4	4	4	4
Solar factor g		0,48	0,48	0,37	0,38	0,30	0,30	0,22	0,24
Shading Coefficient SC		0,55	0,56	0,43	0,43	0,34	0,35	0,26	0,27
U-value	W/(m ² .K)								
Air		1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,4
Argon 90 %		1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2

SGG CLIMAPLUS PARSOL

SGG CLIMAPLUS PARSOL					
Double glazing					
Exterior panes		SGG PARSOL	Bronze	Grey	Green
Internal pane		SGG PLANITHERM TOTAL			
Composition	mm	6 (16) 6	6 (16) 6	6 (16) 6	
Low-E coating position	face	3	3	3	
Light factor					
LT	%	43	37	63	
LRe	%	7	6	9	
LRi	%	10	9	11	
uv	%	11	11	11	
Energy factor					
T	%	30	28	31	
Re	%	12	11	8	
A1	%	51	54	55	
A2	%	7	7	5	
Solar factor g		0,39	0,36	0,39	
Shading Coefficient SC		0,45	0,42	0,45	
U-value	W/(m ² .K)				
Air		1,4	1,4	1,4	
Argon 90%		1,2	1,2	1,2	

Installation Guidelines

See "DOUBLE GLAZING" section for the relevant installation recommendations for each product.

Whilst it is recommended that all non-toughened / heat strengthened double-glazing specification have a thermal safety check carried out, we would strongly suggest that a thermal safety check is carried out when solar control glass is used.

Standards and Regulations

SGG CLIMAPLUS SOLAR double-glazed units meet the requirements of standard BS EN 1279 and will receive the relevant CE marking when it is officially in force.

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 SAINT-GOBAIN
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