

## Building Regulations

SGG PLANITHERM TOTAL+ is the ideal low-E solution for compliance with Building Regulations relating to energy efficiency in England, Wales and the Republic of Ireland (Part L), Scotland (Section 6) and Northern Ireland (Part F).

### Whole Window U-values

Thanks to its superior thermal insulating performance, SGG PLANITHERM TOTAL+ enables a wider range of frame types and designs to meet mandatory maximum and/or area weighted average whole window U-value requirements, affording greater flexibility to architects, specifiers and fabricators.

### Window Energy Ratings

With its optimised balance of very low emissivity and high solar gain SGG PLANITHERM TOTAL+ is one of the most energy efficient low-E glazing product available under the BFRC window energy rating scheme.

This performance advantage can help fabricators and installers comfortably meet the Window Energy Rating band C (or better) requirements of Document L of the Building Regulations using standard double glazed units for the majority of windows. Indeed many standard window designs will now achieve a minimum B rating, allowing for application to be endorsed by the Energy Savings Trust (see overleaf), with the added ability to reach the top of the range A+ ratings using double or triple glazing (depending on the complete window system).

## Technical Specifications

Performance Data	DGU		TGU	
	SGG PLANITHERM TOTAL+			
Internal Pane	SGG PLANICLEAR			
External Pane	SGG PLANICLEAR	SGG DIAMANT	SGG PLANICLEAR	SGG DIAMANT
Composition in mm	4(16)4		4(16)4(16)4	
Low-Emissivity Coating Position	Face 3		Face 3/5	
LT	81%		72%	73%
LRe	12%		16%	
LRI	13%		16%	
T	64%	66%	52%	53%
RE	20%	21%	25%	26%
A1	6%	3%	6%	3%
A2	9%	10%	11%	11%
A3	-	-	6%	7%
g-value	0.73	0.75	0.63	0.64
Shading Coefficient	0.83	0.86	0.72	0.74
U-value in W/m <sup>2</sup> K**				
Air	1.4		0.8	
90% Argon	1.2		0.6	

SGG PLANITHERM TOTAL+ meets the durability requirements of class C of European standards EN 1096 and is CE marked.  
 \* Light and solar performance according to EN 410  
 \*\* Centre-pane U-values have been rounded in accordance with EN 673  
 For Window Energy Ratings simulators should calculate whole window U-values from first principals using normal surface emissivity (ε = 0.05)



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[www.planitherm-network.com](http://www.planitherm-network.com)

## Energy Saving Trust

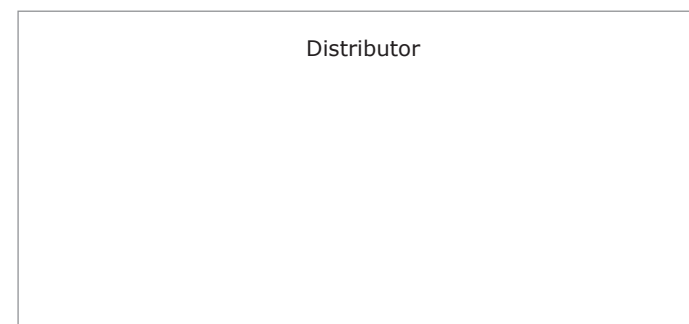
The Energy Saving Recommended logo has been developed by the Energy Saving Trust to distinguish the most energy efficient products on the market.

The Energy Saving Trust is an independent, non-profit making organisation backed by the Government. Its aim is to cut emissions of carbon dioxide (CO<sub>2</sub>) - the main greenhouse gas causing climate change - by promoting the sustainable and efficient use of energy.

Windows with a B rating or higher are eligible to be endorsed by the Energy Saving Trust and (subject to approval) to use the Energy Saving Recommended logo.



High performance low-E glass products such as SGG PLANITHERM TOTAL+ are recognised as being an essential component in improving the energy efficiency of windows and can help windows to qualify for Energy Saving Recommended status.



SGG BIOCLEAN, SGG COOL-LITE, SGG DECORGLASS, SGG MASTERGLASS, SGG PLANICLEAR, SGG PLANITHERM, SGG SATINOVO MATT, SGG STADIP, SGG STADIP PROTECT, SGG STADIP SILENCE add SGG VIEWCLEAR and all other devices and logos are registered trademarks of Saint-Gobain.

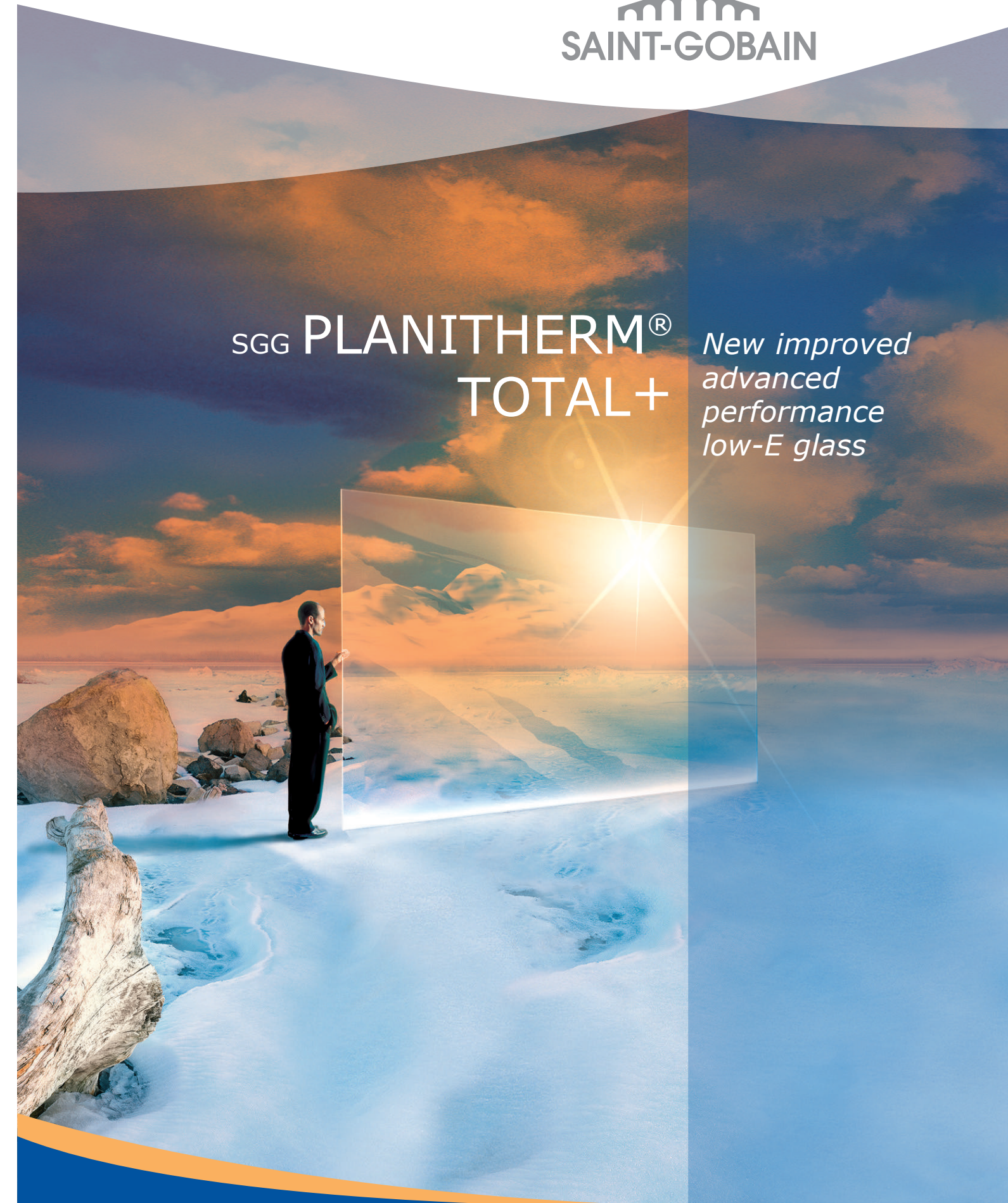
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SGG PLANITHERM<sup>®</sup>  
**TOTAL+**  
 New improved  
 advanced  
 performance  
 low-E glass





# SGG PLANITHERM® TOTAL+

*New improved advanced performance low-E glass*

Our latest generation of SGG PLANITHERM TOTAL+ represents a further breakthrough in low-emissivity (low-E) performance for the UK & Ireland's leading low-E coating brand.

SGG PLANITHERM TOTAL+ is a high performance low-E glass developed in the UK, specifically for the particular needs of the UK market. It has been optimised for even better Window Energy Ratings (WERS) and as such is one of the most energy efficient window glass products available today.

Using the very latest advancements in magnetron coating technology from Saint-Gobain Glass, this new coating combines much improved processing qualities and performance, whilst maintaining the excellent aesthetics that are expected from the SGG PLANITHERM range.

## Marketing campaign to promote energy efficient windows

Since 2011, Saint-Gobain Glass UK has orchestrated a high-impact marketing campaign, utilising direct mail, new campaign-based websites, e-mail, PR and advertising (TV, radio and press).

This exciting and significant promotion has supported the industry by changing the end-consumer's awareness of energy efficient windows and has elevated SGG PLANITHERM TOTAL+ to one of the most recognised low-E coating brands in the market.



Created in response to consumer demand, the PLANITHERM Installer Network is a nationwide group of like-minded window installation companies who supply SGG PLANITHERM and are committed to energy efficiency.

Fabricators and Installers can sign-up by visiting our all-new website [www.planitherm-network.com](http://www.planitherm-network.com)

Free to join, all members receive a host of great support initiatives to help generate customer leads and even rewards for installing windows containing SGG PLANITHERM.



- ✓ Free Member Profile on our consumer site [www.planitherm.com](http://www.planitherm.com)
- ✓ Free Installer Toolkit
- ✓ Free Online Training
- ✓ Free Online Marketing Portal
- ✓ Free Glazing Options Literature
- ✓ New! PLANITHERM Rewards – earn points on every PLANITHERM installation.

## Applications

SGG PLANITHERM TOTAL+ is an extremely versatile low-E solution suitable for a wide range of domestic and commercial applications:

### Residential:

- Windows and skylights
- Patio doors, French doors and other external doors

### Commercial:

- Façades/windows
- Curtain walling
- Structural glazing
- Overhead glazing

## Description

SGG PLANITHERM TOTAL+ is manufactured on the Saint-Gobain Glass UK magnetron coater. A unique combination of multiple metal oxide layers are applied to high quality SGG PLANICLEAR clear float glass using a magnetically enhanced cathodic sputtering process under vacuum conditions. The resultant microscopically thin and transparent metallic coating very effectively reflects long-wave heat radiation back into a room, thereby retaining heat within a building, whilst maximising natural light transmission.

## Benefits

SGG PLANITHERM TOTAL+ offers a number of key benefits that clearly differentiate it from other low-E products, helping to give processors and window fabricators an added edge in an increasingly discerning and competitive market:

### Benefits for glass processors:

- SGG PLANITHERM TOTAL+ is a 'single stock' product; the same version can be used in either annealed or toughened form. This significantly reduces stockholdings, reducing working capital, freeing up warehouse space, as well as simplifying logistics and production planning.
- the latest SGG PLANITHERM TOTAL+ has been developed to significantly improve its durability and ease of processing helping to ensure that finished units are of the highest quality.
- depending on the type of furnace and settings, SGG PLANITHERM TOTAL+ may offer improved toughening cycle times and/or reduced cycle temperatures, helping to improve throughput and lower energy costs.
- as a durable, single version product, SGG PLANITHERM TOTAL+ can help to improve processing optimisation in terms of cutting, planning, and 'right first time' yields.
- produced at the Saint-Gobain Glass UK float plant in Eggborough on the magnetron coater, SGG PLANITHERM TOTAL+ is available in a full range of thicknesses and dimensions.

### Benefits for fabricators/consumers:

#### ● Enhanced Thermal Insulation

- Double glazed units incorporating SGG PLANITHERM TOTAL+ offer up to three times more insulation than standard double glazing and significantly better thermal insulation compared to hard coated low-E products:
- considerable reductions in heating bills
  - eliminates cold areas around windows
  - maximises the amount of natural light into the home, without haze or tint effects
  - helps to reduce condensation on the inner pane
  - environmentally friendly solution, given the lower CO<sub>2</sub> emissions associated with reduced energy consumption
  - ensures compliance with current Building Regulations requirements for all frame types or designs
  - exceptional Window Energy Rating performance thanks to the optimised balance between a very low U-value and even higher solar gain.

#### ● Neutral Appearance

- The SGG PLANITHERM coating is remarkably neutral in both transmission and reflection as opposed to traditional hard coated low-E products which typically suffer from a noticeable tint:
- white curtains remain looking white from outside
  - no discolouration of Georgian bars

#### ● Exceptional Clarity

- SGG PLANITHERM TOTAL+ offers a high level of light transmittance, maximising the entry of natural daylight into the building. This type of coating also benefits from the lack of 'haze effect' commonly associated with hard coated products.

#### ● Brand Marketing Support

- By offering SGG PLANITHERM TOTAL+ fabricators and installers can sign up to be part of our unique PLANITHERM Installer Network, accessing a wealth of marketing support materials and tools to help them differentiate their offer.

SGG PLANITHERM TOTAL+

U - value  
**1.2 W/m<sup>2</sup>K**  
(4(16)4 unit with 90% argon gas filling)

Light Transmittance  
**81%**

Light Reflectance  
**12%**

Solar Factor  
**73%**



## Range

### Stock Sizes

Thickness	Standard Sizes
4, 6, 8, 10mm	6000 x 3210mm
	2550 x 3210mm
	2250 x 3210mm

### Toughened Glass:

SGG PLANITHERM TOTAL+ is an offline coated low-E glass that can be used as a single version in both annealed and toughened form. Critically, once toughened, the coating retains the same technical characteristics and aesthetic qualities. For applications requiring safety glass SGG PLANITHERM TOTAL+ can be readily toughened to meet the requirements of BS EN 12150.

### Laminated Glass:

SGG PLANITHERM TOTAL+ is available as SGG STADIP and SGG STADIP PROTECT laminated glass in most common configurations. Laminated glass offers safety and security performance as well as UV filtration.

## Processing

SGG PLANITHERM TOTAL+ must always be assembled into a double or triple glazed unit. The coating is generally placed on face 3 for DGU (or face 3 / 5 for TGU), though it is possible to place the coating on face 2 without affecting the U-value. Appearance may vary slightly, so it is important to maintain consistent coating positioning throughout a particular façade.

Full guidance on handling and processing SGG PLANITHERM products are detailed in a separate document available from Saint-Gobain Glass UK.

### Triple Glazing

Thanks to its optimised balance of solar gain (g-value) and thermal insulation (U-value), SGG PLANITHERM TOTAL+ is ideally suited to triple glazing applications. Typically the coating is positioned on face 3 and 5 of the IGU to provide the best Window Energy Rating performance. Triple-glazing also provides even more advanced thermal insulation properties with U-values as low as 0.6 W/m<sup>2</sup>K.

It is recommended that the centre pane is always toughened for thermal safety reasons.

## Product Combinations

By combining SGG PLANITHERM TOTAL+ with other specialist glass products available from the Saint-Gobain Glass range, a multitude of high performance, multi-functional glazing solutions can be achieved.

### ● Solar Control Glazing

The SGG COOL-LITE family presents an extensive range of solar control solutions, designed to reduce solar heat gain, thereby reducing reliance on ventilation and air conditioning systems.

### ● Low-maintenance Glazing

SGG BIOCLEAR can be combined with SGG PLANITHERM TOTAL+ to add effective self-cleaning properties to a double glazed unit. This product combination offers a significantly more neutral and less reflective solution compared to equivalent products currently available on the market.

### ● Acoustic Glazing

SGG STADIP SILENCE is an acoustic PVB laminated glass, which noticeably reduces noise whilst also offering the same safety and security characteristics as laminated glass.

### ● Vision Control

SGG DECORGLASS is a range of traditional patterned glass with varying obscuration levels which can be combined with SGG PLANITHERM TOTAL+ to offer privacy in various applications.

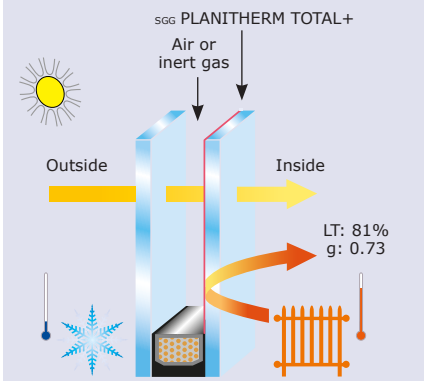
SGG MASTERGLASS (a range of contemporary geometric textured glass) and SGG SATINOVO MATT (acid-etched glass) offer further design possibilities for commercial or domestic applications.

### ● Window Energy Ratings

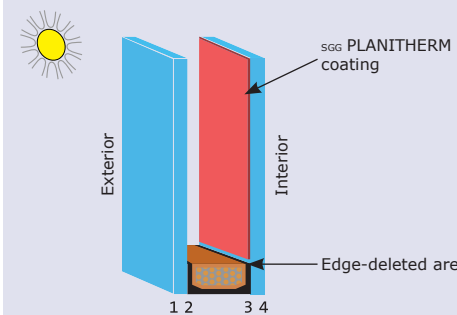
Combining SGG PLANITHERM TOTAL+ with SGG DIAMANT low-iron glass in the outer pane can improve the energy index of a given window by further increasing solar gain.

### ● Anti-Condensation

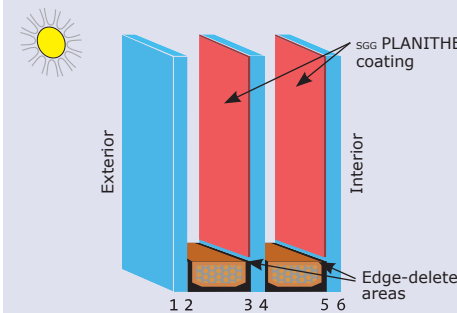
SGG VIEWCLEAR II is a neutral anti-condensation coating designed to significantly reduce the number of days where external condensation may occur on an insulating glazing unit.



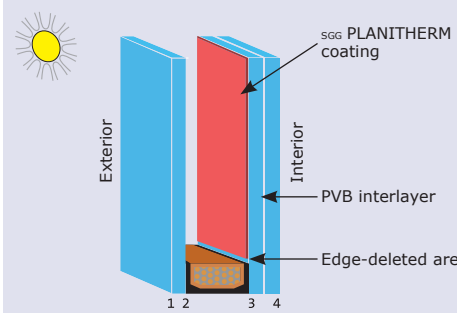
Double-glazed unit with SGG PLANITHERM TOTAL+



Insulating glass unit with SGG PLANITHERM (coating on face 3)



Insulating glass unit with SGG PLANITHERM (coating on faces 3 and 5)



Insulating glass unit with laminated SGG PLANITHERM (coating on face 3)