SAINT-GOBAIN GLASS

# Technical Datasheet

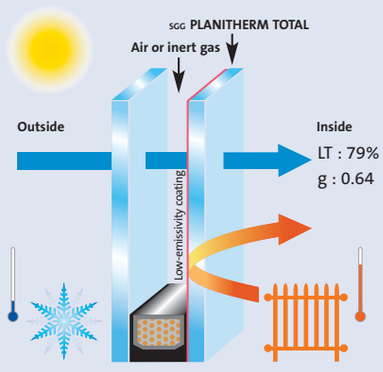
## *Frequently asked questions on low-E glass*

*SGG PLANITHERM TOTAL high performance thermally insulating glass helps reduce heat loss by around 24% more than traditional hard coat low-E glass.*

### What is low-E glass and how does it work?

Thermally insulating glass (also known as low-emissivity or low-E glass) usually forms the inner pane of an insulated glass unit (IGU). The glass has a transparent metallic coating that reflects heat from radiators back into the room, rather than allowing it to escape through the windows. At the same time it allows free heat and light from the sun (known as passive solar heat gain) to pass through the glass, warming your home and further contributing to the energy efficiency of your windows.

**Double glazed unit with SGG PLANITHERM TOTAL**




### Why use low-E glass?

Government Building Regulations (Part L) require us to use energy efficient products that help to reduce $CO_2$ emissions and protect the environment.

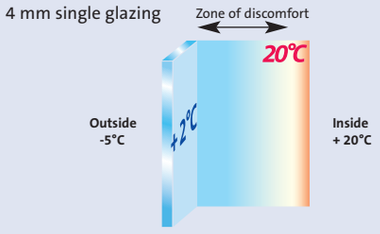
Originally these regulations required windows to achieve a low "U-value" (measurement of heat loss per square metre of glazing). More recently these have been updated to include a Window Energy Rating scheme (see over) which assess the overall energy efficiency of a window and offers a further means of compliance.

Using low-E glass is the most efficient way to comply with these regulations whilst offering further benefits to the home owner:

- Money can be saved on heating bills - heat loss is reduced by at least 40% compared to standard double-glazing.
- Rooms are more comfortable as cold spots near windows and drafts are reduced.
- Condensation on the inside of the glass is reduced because the temperature of the interior pane is kept closer to room temperature.

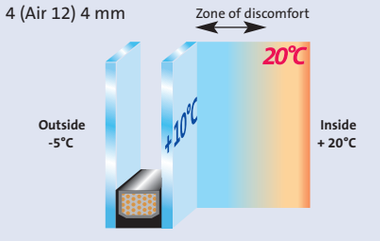
**Temperature of the inner pane**

4 mm single glazing



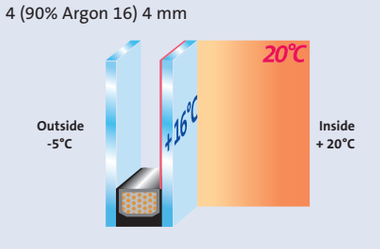

**Standard clear float double glazed unit**

4 (Air 12) 4 mm




**Double glazed unit with SGG PLANITHERM TOTAL**

4 (90% Argon 16) 4 mm




### What are the benefits of the SGG PLANITHERM range compared to traditional hard coated low-E glass?

SGG PLANITHERM is manufactured using the most technologically advanced coating process to offer:

- **Better thermal insulation** - reducing heat loss further (around 24% better than traditional hard coats) saving you even more money on your heating bills and making your room more comfortable. Less energy wastage is also better for the environment!
- **Less of a tint to the glass** - this gives clearer vision through your windows and means your curtains or Georgian Bars do not look dirty or discoloured.


- **More light** - less tint also means more light can enter the room, making a more comfortable environment and reducing the need for extra lighting inside.
- **Less chance of 'haze' (dusty effect)** - this effect is common with traditional types of thermally insulating glass due to the way it is manufactured.

## What is a U-value?

The U-value of a window is a measurement of the rate of heat loss indicating how well your windows are keeping valuable heat in. It is expressed as Watts per square metre Kelvin $W/m^2 K$. The lower the U-value the better the thermal performance of the glass.

## What is a Window Energy Rating?

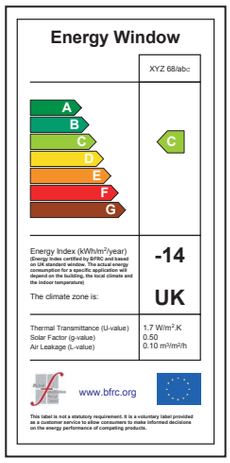
A Window Energy Rating (WER) is the overall energy balance of a window taking into account the frame, the U value of the glass, the available solar heat gain, the type of spacerbar used and air leakage. The resulting numerical value (Energy Index) is generally a negative number which is then placed into a band on an A-G scale consistent with other energy performance labels already familiar to the consumer.

Window Energy Ratings were launched in early 2004 by the British Fenestration Rating Council (BFRC), an independent organisation dedicated to improving the energy efficiency of fenestration products. For more information please see our "Technical Datasheet on Window Energy Ratings".

## Will my windows achieve a good Window Energy Rating using SGG PLANITHERM?

Yes. With its optimised balance of very low emissivity and high solar gain SGG PLANITHERM TOTAL can improve the energy index for a given window by more than 5 $kWh/m^2/year$* when compared to hard coated low-E products. This is almost as much of an improvement as adding low-iron glass to hard coated low-E double-glazed units.

** frame factor of 30% and Uf of 1.8*




| BFRC Rating Scale | BFRC Rating ($kWh/m^2/year$) |
|---|---|
| A | 0 or greater |
| B | -10 to < 0 |
| C | -20 to < -10 |
| D | -30 to < -20 |
| E | -50 to < -30 |
| F | -70 to < -50 |
| G | Less than -70 |


Certification mark

Windows with a C 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 PLANITHERM TOTAL is rapidly becoming the low-E glass of choice in order to achieve the best possible Window Energy Ratings.

## So how much money could I save on heating by using a low-E glass?

By switching from single glazing to double-glazing incorporating SGG PLANITHERM TOTAL you could reduce your heating bill by more than 15%!

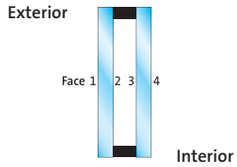
*This is based on a typical Midlands, 1935, semi-detached, solid-wall property with a mains gas boiler running 9 hours a day and maintaining 21°C in the living room and 18°C elsewhere. These figures are illustrative and have been calculated by Government authorised Elmhurst Energy Systems Ltd, using the Government's SAP calculation.*

## What is the carbon footprint of a low-E window?

The manufacturing of one square metre of low-E double glazing leads to the emission of about 25 kg of $CO_2$. The $CO_2$ saving by replacing one square metre of single glazing by low-E double glazing represents about 90 kg $CO_2$ per year. The amount of $CO_2$ emitted during production is thus offset after 3.5 months use. In the case of standard double glazing being replaced by low-E double glazing, the offset time is about 10.5 months. *(source: GEPVP)*

## Where should the SGG PLANITHERM pane be positioned in my double-glazing?

Ideally SGG PLANITHERM should always be positioned on face 3 of a double-glazed unit. However if necessary it can be positioned on face 2 as long as it is facing the cavity and thus protected from the external atmosphere.
It is advisable to ensure that the position of the coating is constant throughout a given project.




## Do double-glazed units made with low-E glass require special maintenance?

No. The glass is positioned so that the coating is on the inside of the unit, so they can be cleaned in the same way as normal windows.

## Where can I buy SGG PLANITHERM?

Many window companies can supply SGG PLANITHERM glazing. Ask for it by name or visit our dedicated website to search our list of selected distributors. Here you can also find more technical information on low-E glass and improving the energy efficiency of your home.

**www.energy-efficient-glass.com**

SAINT-GOBAIN GLASS

**Saint-Gobain Glass UK Ltd**
Weeland Road, Eggborough
East Riding of Yorkshire
DN14 0FD
Tel: 01977 666100
Fax: 01977 666203

www.energy-efficient-glass.com

glassinfo.uk@saint-gobain-glass.com