



Vacuum Glazing  
Pilkington **Spacia™**



## Pilkington **Spacia**™. Today's comfort for historical window frames.

Pilkington **Spacia**™ offers the thermal performance of conventional double glazing in only the same thickness as single glass.

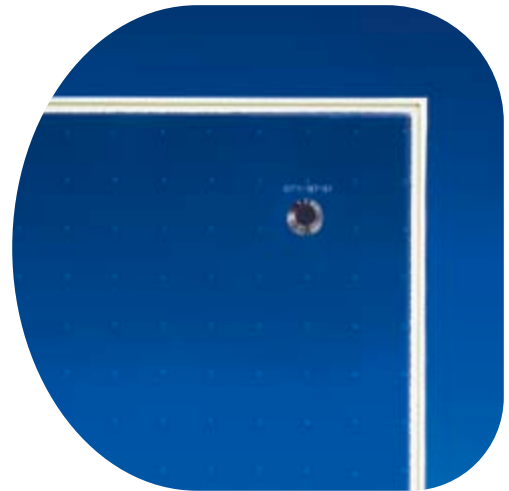
Pilkington **Spacia**™ provides the solution to the problems of balancing historical preservation with modern comfort and environmental requirements.

### Applications

Pilkington **Spacia**™ has a low overall thickness as well as a good acoustic performance and is ideal for use in historic buildings, offering replacement windows more in keeping with the original design. It may even allow the use of the original frames if these are in a reasonable or repairable condition.

Until now, the only choices were to sacrifice thermal performance and comfort, or to compromise the appearance of the building by using bulkier modern frames with double glazing.

Pilkington **Spacia**™ is also suitable for other applications where the use of thinner, low-weight glazing would be desirable, for example in sliding box sashes, secondary glazing, or as one pane of a triple glazed "super-window".



### How it works

Conventional double glazing consists of two glass panes placed up to 20 mm apart, with the cavity between the panes filled with either dry air or an inert gas such as argon or krypton. This gas reduces heat transfer through the glass due to its lower thermal conductivity. The wider the gap between the panes, the lower the heat transfer, up to an optimum level above which circulation patterns in the gas reduce the benefit. This means that the overall thickness of thermally efficient double glazing is typically 24 mm.

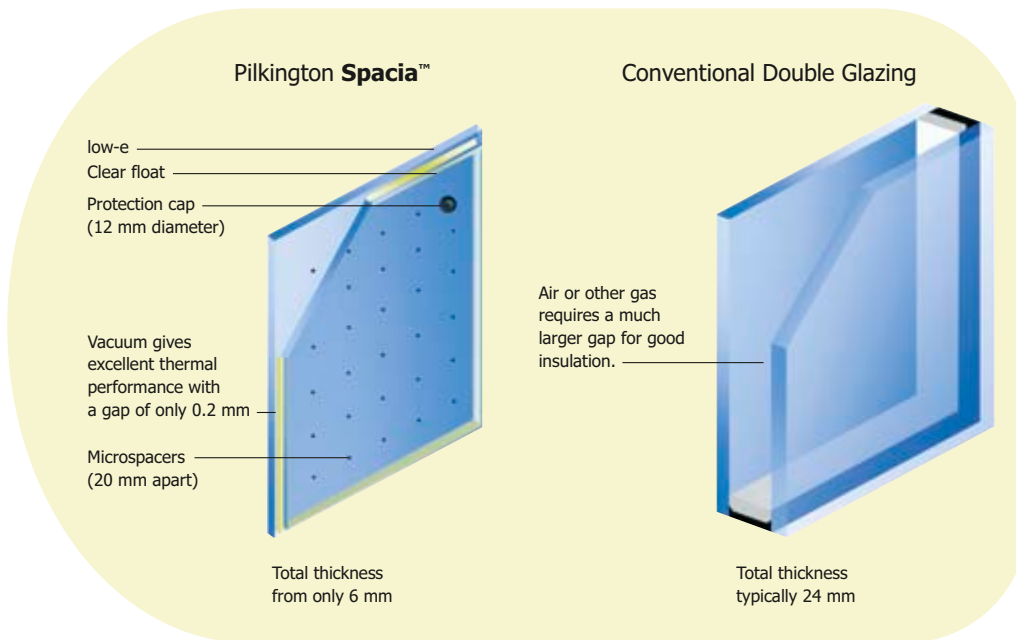
Double glazing with a krypton-filled cavity as low as 4 mm is technically possible, but it is difficult to ensure that such units are sufficiently stable and gas tight to maintain their integrity and keep acceptable levels of thermal performance over the desired life of the glazing.

Pilkington **Spacia**™ is different. The air between the two panes of glass is extracted, creating a vacuum. A vacuum, even a small one, is much more effective at minimising conduction and convection heat losses, so the gap between the two panes can be reduced to just 0.2 mm, giving an overall thickness of just over 6 mm. Heat loss through radiation is limited through one of the glass panes having a low emissivity coating, similar to that used in modern conventional double glazing.





Pilkington **Spacia**™ offers the same thermal performance as conventional double glazing in one quarter of the thickness and two thirds of the weight.



**Protection cap**

The vacuum creation process in Pilkington **Spacia**™ results in a hole in one of the panes, located 50 mm from the glass edge. This hole is covered by a small permanent plastic cap (12 mm radius), which must remain on the glass surface after glazing and should be glazed towards the inside of the building. This can be positioned in any corner of the pane.

**Microspacer**

With an individual radius of only 0.25 mm, this grid ensures that the two glass panes are kept a fixed distance apart.

**Features and benefits**

- Substantially improved thermal insulation compared to conventional double glazing;  $U_g$ -value of 1,4 W/m<sup>2</sup>K in 3-0,2-3 vacuum glazed construction.
- Thermal performance of modern double glazing in the same thickness as single glass, offering the opportunity to improve energy efficiency in older traditional buildings.
- Minimum disruption, can be retro-fitted into existing frames designed for single glazing.
- Cost effective method of improving the energy efficiency of older homes where glazing choice is restricted or where the original frames are a desirable feature.
- Significantly improved acoustic performance over single glazing, enhancing the living and working environment.
- Has been successfully used in Japan for over ten years and is a proven solution.

Pilkington **Spacia**™ – Performance data

Glass Type	Light (%)		Solar Radiant Heat (%)				$U_g$ -value (W/m <sup>2</sup> K)
	Transmittance	Reflectance	Direct Transmittance	Reflectance	Absorptance	Total Transmittance	Vacuum
Pilkington <b>Spacia</b> ™ 6 mm	78	13	62	17	21	67	1.4

Actual thickness: 6,5 ±0,1 mm

The above performance data has been determined in accordance with EN 410 and EN 673.

This publication provides only a general description of the products. Further, more detailed, information may be obtained from your local supplier of Pilkington products. It is the responsibility of the user to ensure that the use of these products is appropriate for any particular application and that such use complies with all relevant legislation, standards, codes of practice and other requirements. To the fullest extent permitted by applicable laws, Nippon Sheet Glass Co. Ltd. and its subsidiary companies disclaim all liability for any error in or omission from this publication and for all consequences of relying on it. Pilkington and "Spacia" are trademarks owned by Nippon Sheet Glass Co. Ltd, or a subsidiary thereof.



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