



Pilkington **Planar**™ System Information

Pilkington **Planar**™ Integral



Pilkington **Planar**™ Integral Laminated Safety Glass
 Performance of typical combinations with clear interlayer

Pilkington Heat Strengthened or Toughened and Heat Soaked Glass Outer Leaf	Pilkington Toughened and Heat Soaked Glass Inner Leaf	Light Transmittance LT	Light Reflectance LR	Total Solar Radiant Heat Transmittance	Total Shading Coefficient	U Value (W/m ² K)	R _w Value (dB)
Pilkington Optifloat ™ Clear	Pilkington Optifloat ™ Clear						
6 mm	10 mm	0.82	0.08	0.67	0.77	5.3	39
6 mm	12 mm	0.81	0.07	0.65	0.75	5.3	39
Pilkington Optiwhite ™	Pilkington Optiwhite ™						
6 mm	10 mm	0.88	0.08	0.81	0.93	5.3	39
6 mm	12 mm	0.88	0.08	0.81	0.93	5.3	39
Pilkington Activ ™ Clear	Pilkington Optifloat ™ Clear						
6 mm	10 mm	0.77	0.14	0.63	0.72	5.3	39
Pilkington Activ ™ Blue	Pilkington Optifloat ™ Clear						
6 mm	10 mm	0.47	0.12	0.42	0.48	5.3	39
Pilkington Arctic Blue ™	Pilkington Optifloat ™ Clear						
6 mm	10 mm	0.50	0.06	0.45	0.52	5.3	39

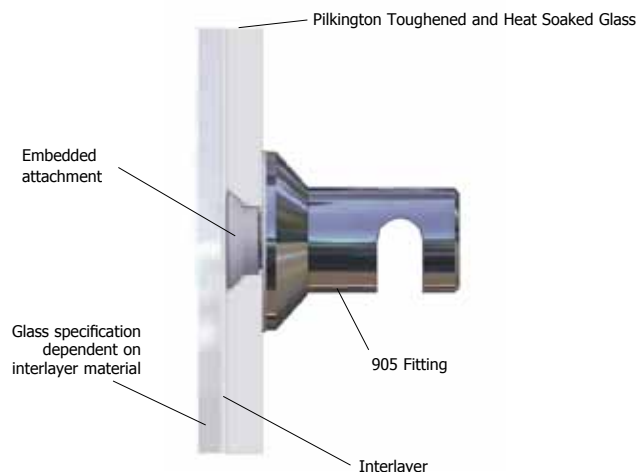
Technical data has been calculated according to BS EN 410 and BS EN 673. The above table has been updated to take into account the declared values of radiation and thermal properties required for CE Marking. R_w Value is indicative for PVB interlayer product only and will be subject to minor variations dependent upon the size of the glass panels and the number of fittings required.

Pilkington **Planar**™ Integral – Glass Types

Glass Type	Colour	6 mm	10 mm	12 mm	15 mm	19 mm	Notes
Pilkington Optifloat ™	Clear	✓	✓	✓	✓		
Pilkington Optifloat ™	Grey	✓	✓				
Pilkington Optifloat ™	Bronze	✓	✓				
Pilkington Optifloat ™	Green	✓	✓				
Pilkington Optiwhite ™	Extra Clear	✓	✓	✓	✓		
Pilkington Arctic Blue ™	Blue	✓	✓				
Pilkington K Glass ™	Clear	✓					
Pilkington Screen Printed Glass	All	✓	✓	✓	✓		Maximum screened area 2400 x 4500 mm (See enclosed data sheet for further details)
Pilkington Activ ™ Clear Pilkington Activ ™ Blue	Clear Blue	✓	✓	✓			

Pilkington **Planar**™ Integral

A fully tested and patented method of fixing laminated glass panels to a backup structure without any exterior bolts, caps or washers. All fixings are embedded within the laminated glass. This fixing system allows a wider variety of external glass types to be used in a structural glass application. Integral allows us to horizontally glaze an entire roof or canopy without any fasteners in the exterior glass. Coloured laminates are currently in development. Please refer to Pilkington Architectural for advice.



Specification – Pilkington **Planar**™ Integral

Indicative Glass combinations

6 mm + 10 mm (csk)
 6 mm + 12 mm (csk)
 6 mm + 15 mm (csk)
 Pilkington **Planar**™ Laminated Safety Glass
 Interlayer: 1.52 mm or 2.28 mm
 There may be a step on each side up to 3 mm

Glass size – rectangles

Maximum: 2300 x 4500 mm 0 + 4 mm
 (Larger sizes upon request)
 Minimum: 300 x 500 mm 0 + 4 mm
 Aspect ratio: 14:1 Maximum
 Larger glass sizes and weights greater than 500 kg subject to enquiry.

Shape capability

Rectangles and simple shapes. All tolerances will vary depending on the complexity of shape.

Edge condition

Smooth ground edges giving a flat profile with small ground arris. Shells or chips at edges will be ground out prior to toughening and do not constitute reason for rejection. Corners may be dubbed. Some variation in edgework may be discernible on exposed edges where different machines and/or hand forming is a requirement for manufacture. Such variations shall be kept to a minimum.

Hole drilling – rectangles

Diameter: 19 mm ±1 mm Countersunk
 Position: Normally 60 mm from glass edge at corners and sometimes along edge. Other configurations subject to confirmation.
 Tolerance: ±2 mm from one datum point
 Number: Up to 10

Method of production

DuPont™ SentryGlas® or PVB.

Toughening Stress

10/12/15 mm glass: Pilkington Toughened and Heat Soaked Glass
 6 mm external glass: Pilkington Heat Strengthened or Toughened and Heat Soaked Glass

Bow

Maximum bow: 0.15% (Float glass)
 0.2% (Ceramic coated glass)

Roller wave

Mean roller wave: t = 6 mm, 0.05 mm
 Mean roller wave: t > 6 mm, 0.02 mm
 Roller wave is usually parallel to the short side and in coated glass should be glazed horizontal where possible.

Glass marking

Glass will be marked with the Pilkington toughening stamp and will show a compliance with other regulatory requirements. The mark to be on each glass usually near a corner. Multiple panes will not necessarily be marked in the same corner. However, the thinner glass will generally be marked with a relatively discreet linear brand close to and parallel to the edge of the pane.

Visual quality

PVB

Advances in PVB technology in recent years have led to improved edge stability. Under natural exposure conditions the edge of a PVB laminate will be of an acceptable quality when properly installed and maintained. However the possibility of minor delamination cannot entirely be excluded. When viewed from a distance of 3 m in transmission and in the vertical position, bubbles, dirt or fibres within the laminate will be considered to be unacceptable if readily visible due to their size or quantity.

DuPont™ SentryGlas®

This interlayer technology delivers increased load bearing characteristics and improved overall durability. Laminates with exposed edges shall not develop defects at edges (including holes) as characterised by the Edge Stability Number (ESN), great than a value of 200, with no defect extending greater than 3 mm normal to the chamfered edge of the laminate. Laminates will conform to the specification for process blemishes set forth in ASTM C1172-03, Table 1. When viewed from a distance of 3 m in transmission and in the vertical position, bubbles, dirt or fibres within the laminate will be considered to be unacceptable if readily visible due to their size or quantity.

Distortion

When laminating toughened or heat strengthened glasses together slight visible distortion in transmission due to the small lens effects will be noted with increase in viewing angle. The phenomenon is not normally a problem in roof glazing, but may be discernible in vertical glazing. On occasion such effects can be increased by the specification of a coated glass. Site inspection should be from a distance of 3 m and viewed at right angles to the glass.

Installation

Whilst the Pilkington **Planar**™ system is completely weatherproof, the components are not designed to be left in contact with water for extended periods, and adequate ventilation or drainage should be provided to allow the system to dry out periodically. Weatherseals used around the periphery must be compatible with the Pilkington **Planar**™ system and approval from Pilkington Architectural should be sought prior to application. The integral system should be installed with silicone weatherseals. Applications in which a weatherseal is not necessary should be discussed with the Pilkington Architectural design team during concept development.

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