

Pilkington **Planar**™ System Information

Single glass – flat and curved



Single Pilkington **Planar**™ Glazing – Performance

Glass Type	Colour	Thickness (mm)	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	10	0.87	0.08	0.77	0.89	5.6	34
Pilkington Optifloat ™	Clear	12	0.85	0.08	0.74	0.85	5.5	35
Pilkington Optifloat ™	Clear	15	0.83	0.08	0.70	0.80	5.4	36
Pilkington Optifloat ™	Clear	19	0.81	0.07	0.66	0.76	5.3	40
Pilkington Optifloat ™	Bronze	10	0.32	0.05	0.44	0.51	5.6	34
Pilkington Optifloat ™	Grey	10	0.26	0.05	0.44	0.51	5.6	34
Pilkington Optifloat ™	Green	10	0.67	0.07	0.49	0.56	5.6	34
Pilkington Optiwhite ™	Extra Clear	10	0.90	0.08	0.89	1.02	5.6	34
Pilkington Optiwhite ™	Extra Clear	12	0.90	0.08	0.88	1.01	5.5	35
Pilkington Optiwhite ™	Extra Clear	15	0.90	0.08	0.87	1.00	5.4	36
Pilkington Optiwhite ™	Extra Clear	19	0.89	0.08	0.85	0.99	5.3	40
Pilkington Arctic Blue ™	Blue	10	0.38	0.05	0.40	0.46	5.6	34
Pilkington Activ ™ Clear	Clear	10	0.81	0.14	0.74	0.85	5.6	34
Pilkington Activ ™ Blue	Blue	10	0.35	0.13	0.36	0.41	5.6	34

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.

Single Pilkington **Planar**™ – Glass Types

Glass Type	Flat	Curved	Notes
Pilkington Optifloat ™ Clear	✓	✓	
Pilkington Optifloat ™ Bronze/Grey/Green	✓	✓	
Pilkington Optiwhite ™	✓	✓	
Pilkington Arctic Blue ™	✓	✓	
Pilkington Activ ™ Clear and Pilkington Activ ™ Blue	✓		
Pilkington Screen Printed Glass	✓	✓	Maximum screened area 2400 x 4500 mm (See enclosed data sheet for further details)

Specification – flat single Pilkington **Planar**™

Flat glass

Thicknesses:	10, 12 mm	±0.3 mm
	15 mm	±0.5 mm
	19 mm	±1.0 mm

Flat glass size – rectangles

Maximum:	2400 x 4800 mm	±1 mm
Minimum:	300 x 500 mm	±1 mm
Aspect ratio:	14:1	Larger on request
Diagonal tolerance:	Up to 4 m:	3 mm Maximum difference
	Over 4 m	4 mm Maximum difference

Flat shape capability – simple shapes

All tolerances will vary depending on the complexity of shape.

Bow

Maximum bow:	0.1%	(Float glass)
	0.2%	(Ceramic coated glass)

Roller wave

Mean roller wave depth: 0.02 mm
Maximum edge dip: 0.25 mm
Roller wave is usually parallel to the short side and in coated glass should be glazed horizontal where possible.

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 (larger on request)

Toughening stress

Thermally toughened soda lime silicate safety glass to BS EN 12150. Classified as 1(C)1 to BS EN 12600. Checked regularly during production by fracture count or the Differential Stress Refractometer (DSR) method.

Heat soak testing

All toughened glass will be supplied heat soaked to or in excess of international specifications e.g. BS EN 14179.

Glass marking

Glass will be marked with the Pilkington toughening stamp and will show compliance with regulatory requirements. The mark will be on each glass pane.

Visual quality

Roller wave and natural bow in toughened glass have minimal effect on vision in transmission but can be observed in reflection, obviously more with reflective glass. This is kept to a minimum with the very low roller wave and bow in Pilkington Toughened and Heat Soaked 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.

Specification – curved single Pilkington **Planar™**
Curved glass

Thicknesses:	10 mm, 12 mm	±0.3 mm
	15 mm	±0.5 mm
	19 mm (on request only)	

Curved glass size – rectangles

Developed width:	360 to 2400 mm	±3 mm
Length:	500 to 3450 mm	±3 mm
Aspect ratio:	2:1 maximum for large areas	
Minimum size:	360 x 900 mm	±3 mm
Minimum radius:	1000 mm	
Maximum weight:	350 kg	

Larger sizes and tighter radii available on request.

Tolerances on curves are difficult to define. In simple terms:

Straight edge will be:	±3 mm from the straight
Torsion:	±5 mm per metre measured along the straight edge
Maximum angle:	90°

Tolerance of curve will be 1½ times glass thickness. i.e. a 10 mm thick glass will fit into a 10 x 1½ = 15 mm channel width. Please be aware that all curved toughened glass will have flats of 100 mm to 150 mm on the leading and trailing edges.

Curved shape capability

Rectangles and simple rakes. All tolerances will vary depending on 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 machine and/or hand forming is a requirement for manufacture. Such variations shall be kept to a minimum.

Hole drilling

Diameter:	19 mm ±1 mm countersunk
	Curved glass generally countersunk on convex side only although exceptions can be made. Please contact Pilkington Architectural for further assistance.
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

Toughening stress

Thermally toughened soda lime silicate safety glass levels equivalent to BS EN 12150. Checked regularly during production by fracture count or the Differential Stress Refractometer (DSR) method.

Heat soak testing

All toughened glass will be supplied heat soaked to or in excess of international specifications e.g. BS EN 14179.

Glass marking

Glass will be marked with a toughening stamp and will show compliance with regulatory requirements. The mark will be on each glass pane.

Visual quality

A degree of distortion, both when looking through and in reflection, is inevitable in curved toughened glass, particularly when viewing a moving object through the glass. All curved glass should be site inspected from a minimum distance of 3 m and viewed at right angles to the glass. It should also be noted that toughened curved glass will split direct sunlight into striped shadow.

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.

General Notes – Curved Glazing

Curved Pilkington **Planar**™ applications are the subject of continuing development and enquiries are welcomed for projects furthering current specifications and usage. Special fittings have been designed for curved glazing and particular torque settings determined. The angle of spring plate or 905 bar must suit the curve radius. The curve may be on any plane.

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, code 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.

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