



## Pilkington T glass

Toughened glass is up to five times stronger than ordinary glass of the same thickness. Because of its increased strength, Pilkington T glass allows architects and builders far greater scope in their use of glass in buildings. It meets worldwide safety standards for glass subjected to accidental human impact at the highest level of severity.



**PILKINGTON**  
NSG Group Flat Glass Business



## Introduction

Pilkington T glass is manufactured by subjecting final size glass to a heating and cooling treatment whereby high compressive stresses are set up at the surfaces with balancing tensile stresses in the centre. The high compressive surface stresses give the Pilkington T glass its increased resistance to mechanical strength and thermal stress.

### Safety

All Pilkington T glass achieves Class A impact safety performance to BS 6206:1981.

*Note: In the future, references to BS 6206 in BS 6262-4 and relevant Building Regulations (e.g. Part N in England & Wales) are likely to be superseded by BS EN 12600.*

### Benefits

- Conforms to European and International standards
- Recognised worldwide as a safety glass
- Available in heat soaked form for areas such as overhead glazing and barriers
- Will eliminate the risk of thermal fracture due to excessive solar radiation absorption
- If broken, it breaks into relatively harmless pieces reducing the risk of serious injury
- A range of glass types is available in the sizes and thicknesses highlighted in Table 1

**Table 1:** Pilkington T glass: Minimum & maximum sizes and thicknesses

Glass Type	Thickness (mm)	Minimum Size (mm)	Maximum Size (mm)
Pilkington <b>Optifloat™</b> Clear T	4	300 x 500	1500 x 2200
	5, 6, 8, 10, 12	300 x 500	2000 x 4200
	15	300 x 500	1700 x 4200
	19	300 x 500	1500 x 4200
Pilkington <b>Optifloat™</b> T	4	Bronze, Grey, Green,	300 x 500
		Bronze, Grey	300 x 500
		Green,	300 x 500
Pilkington <b>Arctic Blue™</b> T	4	300 x 500	1500 x 2200
	6, 10	300 x 500	2000 x 2400
Pilkington <b>Suncool™</b> High Performance T	6, 8, 10	300 x 750	2000 x 3500
Pilkington <b>K Glass™</b> T	4	300 x 500	1500 x 2200
	6	300 x 500	2000 x 4200
Pilkington <b>Optitherm™</b> SN T	6, 10	300 x 750	2000 x 3500
Pilkington Texture Glass T	4, 6	300 x 500	1200 x 2000
Pilkington Spandrel Glass T	6, 8, 10, 12	300 x 500	1500 x 3000

**Table 2: Maximum values for overall and local bow**

Glass Type	Maximum overall bow (mm/mm)	Maximum local bow (mm/300mm)
Float to BS EN 572-2	0.003	0.5
Others	0.004	0.5

**Table 3: Tolerances on hole diameters**

Nominal hole diameter Ø (mm)	Tolerances (mm)
$4 \leq \text{Ø} \leq 20$	$\pm 1.0$
$20 < \text{Ø} \leq 100$	$\pm 2.0$
$100 < \text{Ø}$	submit request

Tables taken from BS EN 12150-1:2000



### Thermal durability

The mechanical properties of Pilkington T glass are unchanged for continuous service up to 250°C and unaffected by temperatures below 0°C. Pilkington T glass is capable of resisting temperature differentials up to 200°C.

### Flatness

Pilkington T glass complies with the requirements of maximum values for overall and local bow in accordance with BS EN 12150-1:2000, as summarised in Table 2.

### Edge work

An arris edge is the simplest type of edgework and consists of removing the sharp edges from 'as cut' glass. Flat ground edges give a flat profile with smooth arris. A polished edge can be specified for exposed edges, e.g. in furniture.

### Holes

Pilkington T glass can be supplied with drilled holes. The diameter of holes should, however, not be less than the thickness of the glass. Enquiries should be submitted for holes greater than 30mm in diameter.

Limitations on hole positions relative to the edges and corners of the glass and to each other depend upon a number of factors, including nominal glass thickness, pane dimensions, hole diameter, shape of pane, and number of holes. BS EN 12150-1:2000 recommends that the distance between the edge of a hole to the glass edge should not be less than twice the glass thickness. It also recommends that the distance of the edge of a hole to the corner of the glass should not be less than six times the glass thickness.

Tolerances on hole diameters in Pilkington T glass are in accordance with BS EN 12150-1:2000, as summarised in Table 3.

### Shapes

Shapes other than rectangles can be manufactured; advice should be sought before ordering. Tolerances on shape and hole position are subject to complexity of the design.

### Heat soaking

Pilkington T glass is available in heat soaked form as Pilkington T Plus, for those applications where a reduction in breakage risk is advantageous. Examples include barrier applications, spandrel panels and roof glazing. *Note: A draft European standard on heat soaked thermally toughened soda lime silicate glass (pr EN 14179) is in preparation.*



### Identification

A safety glass only complies with BS 6206:1981 if it is marked as doing so. The standard requires that all installed panels shall be marked to include the following:

- An identifiable trade name or other mark capable of identification through a suitable source
- The type of material
- The number of the British Standard i.e. BS 6206 and the classification achieved.

### Glazing

Edge clearance must always be allowed and cushioning, e.g. setting blocks, gaskets, etc., installed to prevent contact with hard material. Glass to metal contact should be eliminated at all times by the use of gaskets, bushes, neoprene linings and neoprene or hardwood setting blocks. All fittings must be free from high spots and/or burrs.

Glazing should generally be carried out in accordance with the requirements of BS 6262 and BS 8000:Part 7.

### Appearance

The actual appearance of Pilkington T glass depends upon the type of glass, the colour and the thickness of the glass selected to be toughened.

Under particular lighting conditions and viewing angles the stress pattern induced by the heat treatment can sometimes be seen. This 'strain' pattern is usually noticed in slightly polarised light and is an inherent characteristic of the toughening process. Some slight distortion (bow and roller wave) can occur in such heat-treated glass due to the directional nature of the process. This will be accentuated in the more reflective types of glass when viewed from the outside of a building.

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