



Pilkington **Planar**<sup>™</sup> - the world's leading structural glazing system

Enhancing quality by minimising distortion on thermally toughened glass

Pilkington **Planar**™ the world's leading structural glazing system, manufactured in St Helens in the UK and exported worldwide.

With a proven track record of over 40 years, Pilkington **Planar**™ is acknowledged as the superior point fixed structural glazing system. Every installation of our premium glass product is designed & engineered in-house by our team of specialist design engineers, combining glass from our extensive product portfolio and using precision Grade 316 stainless steel fittings.

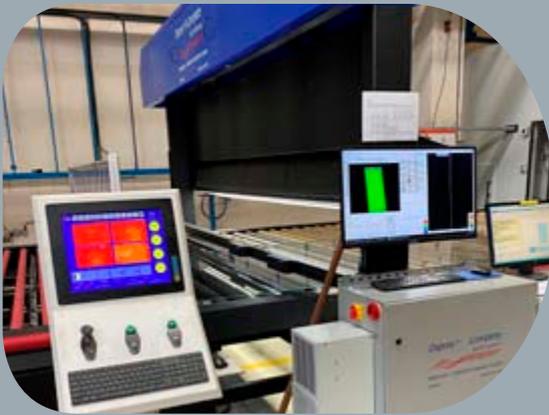
Pilkington Architectural's latest investment in a double chamber full convection (top and bottom) toughening furnace, complimented with the latest state of the art Osprey™ Complete

provides the advanced technology required to offer a range of fully toughened glass with minimal levels of distortion.

The fully automated in-line Osprey™ Complete distortion monitoring system, ensures superior quality glass with the strength required for structural glazing systems and the perfect optics for landmark projects.

It also enables anisotropy inspection (seen as reflected iridescence) which is a concern of growing interest to architects, developers, and building owners. Anisotropy is a natural phenomenon of the toughening process and affects the way that the glass reflects polarized light.

## How does the technology work



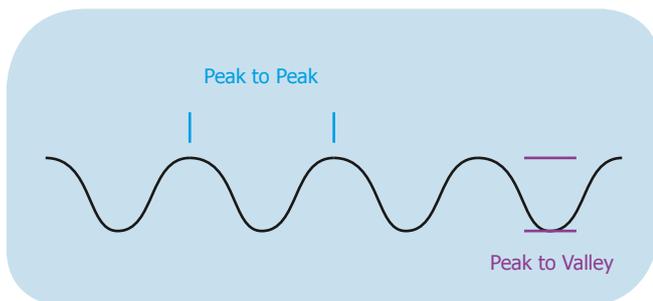
Osprey Scanner installed at Pilkington Architectural UK

The toughened glass exits the furnace and passes directly beneath the scanner.

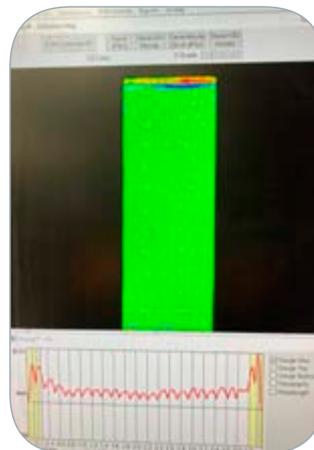
- The Osprey™ Complete scanner offers the most comprehensive inspection system for toughened glass.
- Allows for Anisotropy Inspection: measuring iridescence and average stress.
- Highly accurate and precise measurements are taken across both surfaces of every piece of glass.
- Distortion and peak to valley roller wave measurements are calculated and presented to the operator in real time.
- Allows the operator to remove glass that does not meet our high specification improving process control.

## What is distortion?

The high temperature horizontal ceramic roller toughening process inherently imparts some curvature in the glass. The curvature will bend the reflected and transmitted light which the viewer perceives as optical distortion (measured in millidiopters)\* and peak to valley roller wave (measured in millimetres).



We closely monitor such values to optimise the heating and quench controls, in order for the glass to exit the furnace in the same shape and form as when it enters with no visible distortions.



Real time measurement of optical roller wave distortion from peak to peak and peak to valley. To view scanner in operation visit <https://litesentry.com/products/osprey-complete-inspection-system>

\* In the context of this brochure, a millidiopter (mD) is a unit of measurement for the distortion in glass.

The higher the numerical value, the worse the visual appearance will be.

Perfectly flat glass would be 0 mD but typical float glass would generally be in the region of 30 to 50 mD BEFORE being subjected to any heat treatment.

Superior quality toughened glass with no distortion

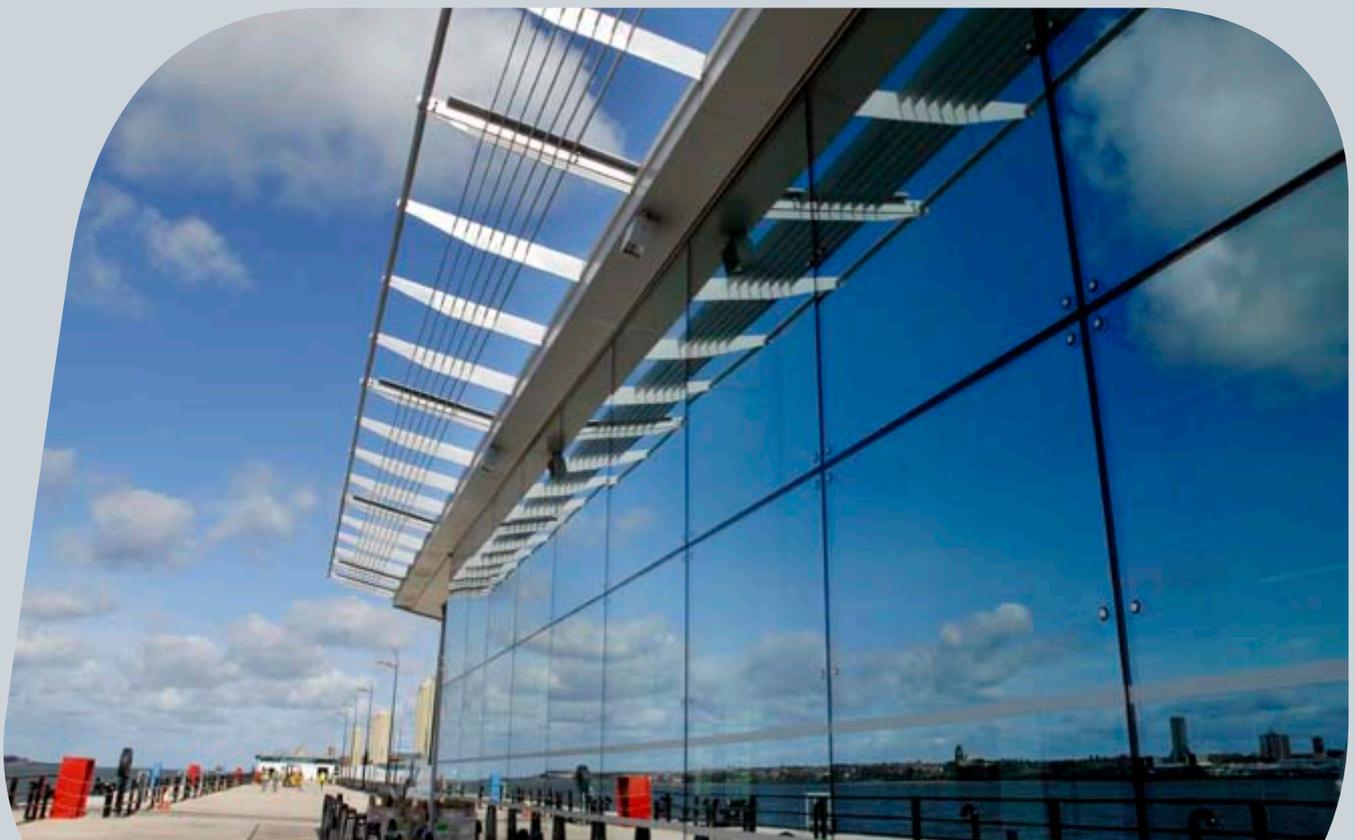


Glass distorted during the toughening process



Pilkington **Planar**™ toughened glass exceeds BS EN 12150, ASTM C 1048 and ANSI Z97.1, with maximum optical distortion of 99 milli-diopters (mD) over 95% of the surface for all coated and non-coated glass without ceramic frit, up to 19 mm thickness, while maintaining the minimum stress level required for the Pilkington **Planar**™ system. Mean Roller wave depth 0.02 mm (0.0008") in the central area, for all thermally toughened glass.

Liverpool Cruise Terminal – an example of how superior flat glass creates a mirror image of the surroundings.



## OSPREY™ COMPLETE Anisotropy + Distortion Inspection System Offers:

- Industry standard for automatic detection of distorted glass immediately after toughening
- Industry standard for automatic detection of anisotropic glass immediately after toughening
- Provides 100% real-time data for true process and quality control of every piece of glass
- Increases operational throughput and optimises glass quality
- Enhanced online accuracy versus offline manual time sensitive measurements
- A comprehensive range of toughened glass with minimal levels of distortion or anisotropy, providing enhanced aesthetics.

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