

# SMOOTH OPTICS



## What Is It?

Smooth Optics is the stand out innovation in the house brand lens sector. The process for creating Smooth Optics designs starts by defining the lens surface in terms of its optical properties. This **PATENTED** approach reverses the normal design process, so rather than create a surface and analyse to determine its optical performance, the starting point is describing the Mean Power required by the eye at all points of the lens and then deriving the surface to match this ideal. The Mean Power profile is more even and smooth, not only in the principal viewing zones, but also the peripheral areas.

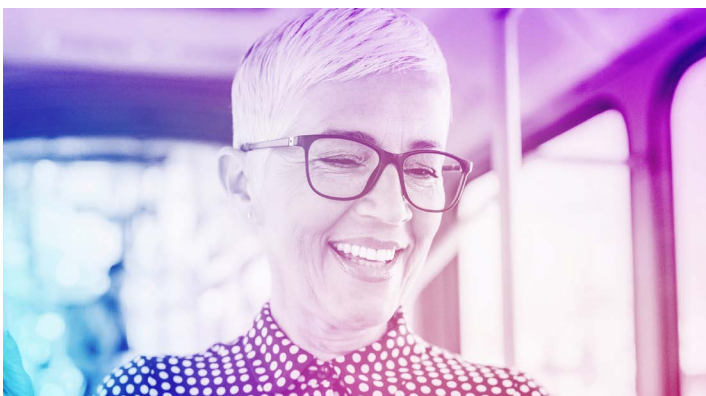
## Where Is It Used?

Smooth Optics is the most advanced technology available for progressive lens wearers and as such is only found in our top level design and our new Junior Soft design:

**Custom Delux** and **Custom Junior Soft**

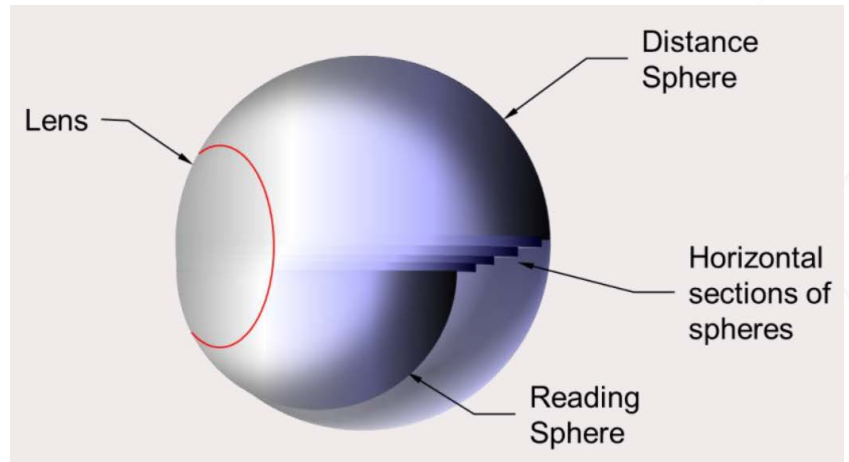
## What Are The Benefits?

- > Superior patient comfort
- > Sharp viewing in all directions
- > Minimises blurring experienced with traditional progressives
- > Faster patient adaptation times and greater patient satisfaction



## How Does It Work

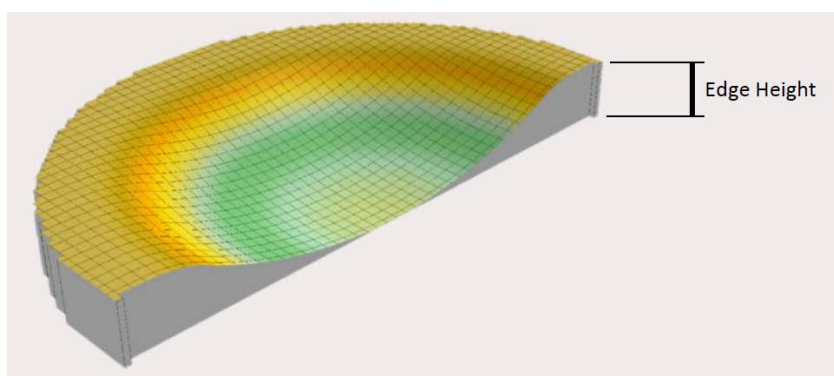
Traditionally, a progressive lens is designed by defining the surface geometry of a lens. For example, a lens could be described as a series of parts of spheres: a sphere with a large radius is required for distance vision; a sphere with a small radius is required for near vision; the intermediate vision is made up of a range of spheres, with a range of radii. These are merged together to form one progressive lens surface.



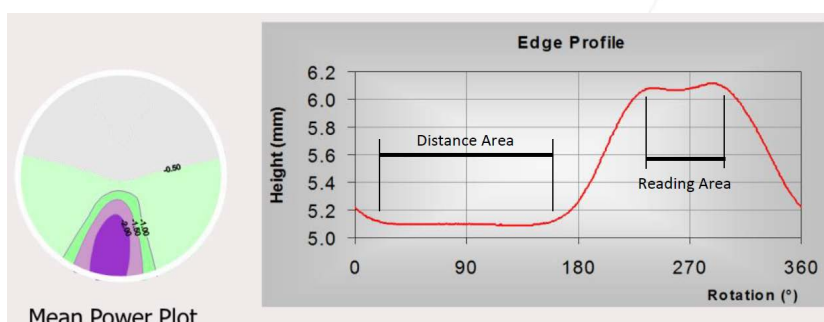
The resulting lens surface can now be analysed in terms of its optical properties: power and cylinder. Depending upon the results of this analysis, the radius of spheres and how they are arranged relative to one another must be changed until all components that make up a progressive lens are satisfied: a large, clear distance area with minimal cylinder; a large, clear reading area with minimal cylinder; a corridor of varying power between these two zones with reduced cylinder; a soft transition of power and cylinder in all regions, etc.

With **Smooth Optics**, the starting point is completely different. A continuous surface (a progressive lens is a continuous surface, a flat top bifocal is not) can be defined solely in terms of:

- > Mean power distribution
- > The variation of height around the edge of the surface. The diagram below of a lens that has been cut in half shows where edge height is measured



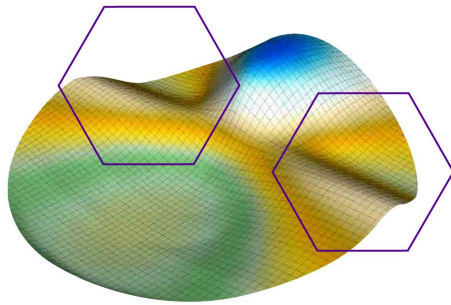
The starting point for a **Smooth Optics** progressive design is now plotted in these two terms:



The surface coordinates, which allows the surface to be machined, can now be derived from these two properties. When this starting point of optical properties is used, **Smooth Optics** (i.e. a smooth variation of power) are an intrinsic feature of the surface. In traditional progressive lenses, there are inevitable rises and falls in mean power across the lens.

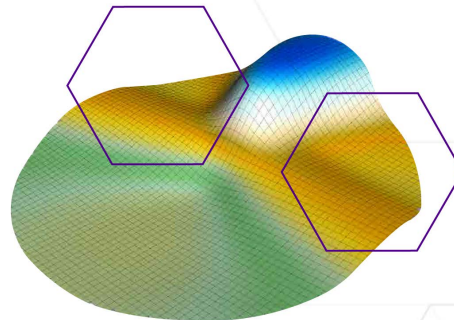
These are better controlled and more consistent in progressive lenses designed with **Smooth Optics**.

### Without Smooth Optics



Regions of uneven mean power variation

### With Smooth Optics



Much smoother power variation

Progressive lenses, by their very nature, will have variation in mean power. This variation is what allows the lens to have distance, intermediate and near vision regions. However, how that variation is controlled makes a difference to the visual comfort of the end user. With **Smooth Optics**, there is a reduction in the “swim” effect that is often experienced, and this results in designs that are preferred over designs without **Smooth Optics**, and result in faster adaptation and greater satisfaction.

### Summary

Traditional progressive lenses are defined by the geometry of the lens surface. The optical properties are measured and the geometry is adjusted until a lens is designed.

**Smooth Optics** lenses are defined by optical properties. The geometry is derived from these optical properties allowing the surface to be machined.

### Custom Delux Powered By Smooth Optics



### Custom Junior Soft Powered By Smooth Optics

