



A Comparison of Available Scleral Lens Designs in the United States

Janna Pham, Brandon Le, and Karen Lee OD, FAAO, FSLs

Introduction & Purpose

Scleral lenses (SLs) have greatly evolved with new materials, fitting concepts and designs that help customize to patients' needs. In the US alone, there are 16 lens manufacturers that provide at least 41 unique SL designs. With the significant increase in SL demand over the last five years, practitioners may find it challenging to survey the influx of new/updated SLs designs and customizations available in the market. The purpose of this survey is to highlight updated SL customization options, prices and warranties.

Methods

Direct communication via email or telephone interview with the different contact lens manufacturers listed in Tyler's Quarterly was the main method of SL data compilation.

Results

Efficient turnaround time is an important part of the SL fitting process and patient management. The majority of surveyed manufacturers are able to ship lenses within 5 days of ordering. The shortest turnaround period is within 24 hours, while the longest is 10 days (Figure 1).

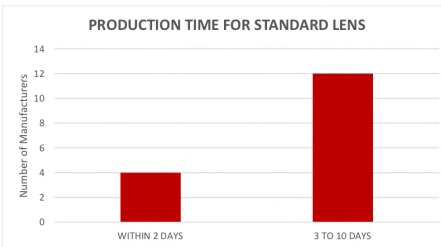


FIGURE 1. Number of manufacturers with specified production periods. Shipping time not included.

Manufacturers offer a flexible warranty period to ensure an optimized SL fitting process. From the initial order date, the shortest warranty period is 90 days and the longest is 180 days. Additionally, two manufacturers offer warranty upgrade options. The majority of manufactures offer a 90- or 120-day warranty; additional remake costs can be incurred with lens upgrades and shipping fees (Figure 2). With increasing amounts of customizable parameters available, having an adequate timeframe for lens adaptation and to speak with consultation is important to have throughout a SL fitting process.

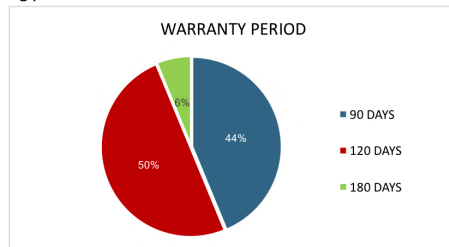


FIGURE 2. Warranty periods offered amongst manufacturers.

Manufacturer	Lens	Front Surface Cylinder	Back Toric Haptics	Quadrant Specific Haptics	Multifocal	Hydrapeg	Edge Lift / Vault	Fenestrations	Optical Prism	Channels	Notching	Wavefront Guided Optics	Empirical Ordering	Online Ordering	Scleral Topography
ABB Optical Group	ICD FlexFit	Y	Y	Y	Y	Y	Y	N	Y	N	N	N	N	Y	N
	ICD	Y	Y	N	N	Y	Y	N	Y	N	N	N	N	Y	N
	Dyna Scleral	Y	Y	N	N	Y	N	N	Y	N	N	N	N	Y	N
	Infinity Scleral	N	N	N	N	Y	N	N	N	N	N	N	N	Y	N
Acculens	Maxim 3D	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y (Ovits)	Y	Y	Eaglet-Eye ESP and Pentacam CSP
	Maxim	Y	Y	Y	Y	Y	Y	Y	N	N	Y	N	Y	Y	Eaglet-Eye ESP and Pentacam CSP
	EasyFit	Y	Y	Y	Y	Y	Y	N	N	N	Y	N	Y	Y	Eaglet-Eye ESP and Pentacam CSP
Advanced Vision Technologies	Naturalens Scleral	Y	Y	N	Y	N	Y	N	Y	N	Y	N	N	Y	Eaglet-Eye ESP and Pentacam CSP
	Naturalens Mini	Y	Y	N	Y	Y	N	Y	N	N	Y	N	Y	Y	Eaglet-Eye ESP and Pentacam CSP
Alcon Optical	Zonlens	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	Eaglet-Eye ESP and Pentacam CSP
	SoClear	N	N	N	N	Y	Y	N	N	N	Y	N	Y	Y	Eaglet-Eye ESP, Pentacam CSP and Medmont
Art Optical	Ampleye	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	Y	Eaglet-Eye ESP, Pentacam CSP and Medmont
	OneFit	Y	Y	Y	Y	Y	Y	N	N	N	Y	N	Not Preferred	Y	Compatible to All
Blanchard	OneFit SCL	Y	Y	Y	Y	Y	Y	N	N	Y	N	N	Not Preferred	Y	Compatible to All
	OneFit Med	Y	Y	Y	Y	Y	Y	N	N	N	Y	N	Not Preferred	Y	Compatible to All
	OneFit Med+	Y	Y	Y	Y	Y	Y	N	N	N	Y	N	Not Preferred	Y	Compatible to All
BostonSight	BostonSight SCLERAL	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y+ (Ovits, Trace, OPD, iDesign)	N	Y	Eaglet-Eye ESP and Pentacam CSP
	Jupiter	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y	N	N	Compatible to All
Essilor	ProLOK	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y	N	N	Compatible to All
	iSight Scleral	N	Y	Y	N	Y	Y	Y	Y	N	Y	N	Y	Y	N
GP Specialists	C&F	Y	Y	N	Y	Y	Y	N	Y	N	Y	Y	Y	Y	N
	iSight Scleral	Y	Y	Y	Y	Y	Y	N	Y	N	Y	N	N	N	Eaglet-Eye ESP
SynergEyes	SynergEyes VS Scleral	Y	Y	N	Y	Y	N	N	N	N	N	N	N	N	Eaglet-Eye ESP
	DigForm 16.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Calling Preferred
Truform Optics	DigForm 16.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Calling Preferred
	TruScleral	Y	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	N
Valley Contax	Custom Stable Prime	Y	N	N	N	Y	Y	Y	Y	Y	Y	N	N	Y	Eaglet-Eye ESP
	Custom Stable Elite	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	N	Y	Eaglet-Eye ESP
	Prolate	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	N	Y	Eaglet-Eye ESP
	Custom Stable Elite Oblate	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	N	Y	Eaglet-Eye ESP
	Custom Stable Aurora	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Eaglet-Eye ESP
	Optix AREO	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y (Ovits)	N	Y	Eaglet-Eye ESP
Visionary Lens	Optix Wavefront Guided	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Eaglet-Eye ESP
	Quadi OS Freeform	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Gauzzi, Eaglet-Eye ESP and Pentacam CSP
	Quadi Legend Freeform	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Gauzzi, Eaglet-Eye ESP and Pentacam CSP
	Baet	Y	Y	Y	N	Y	Y	N	Y	N	N	N	Y	Y	Eaglet-Eye ESP and Pentacam CSP
Visionary Optics	Jeray	Y	Y	Y	Y	Y	Y	N	Y	N	Y	N	N	Y	Eaglet-Eye ESP and Pentacam CSP
	Europa	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Not Preferred	Y	iMap3D compatible
	Elara	Y	Y	N	Y	Y	N	N	N	N	Y	N	Not Preferred	Y	iMap3D compatible
	Jupiter	Y	Y	N	Y	Y	N	N	N	N	Y	N	Not Preferred	Y	iMap3D compatible
X-Cal	Latitude	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Not Preferred	N	iMap3D compatible
	Atlantis	Y	Y	Y	Y	Y	Y	N	N	N	Y	N	Y	Y	Eaglet-Eye ESP

Y indicates the manufacturer offers this customization at no additional cost

N indicates the manufacturer is not capable of this customization

(+) indicates there is an additional cost associated with this customization

TABLE 1. Summary overview of scleral lens manufacturers in the United States and their available designs.

Results

All surveyed manufacturers offer at least one SL design that offer front and back surface toricity with approximately half of them including the customization within the initial SL cost. 81% of manufacturers provide a localized vault option without a surcharge. 81% of the surveyed manufacturers also offer quadrant specific landing zone alterations and notching. Almost all manufacturers provide multifocal options (81%) and hydra-peg coating (100%)—both at an additional cost. 63% of manufacturers offer fenestrations. Less than 50% of manufacturers offer advanced customizations, like optical prism (50%), channels (31%) and wavefront-guided optics (31%). Currently, 75% of manufacturers support online ordering with 83% of all SL designs having scleral topography compatibility (Table 1).

Initial lens cost to practitioners ranged greatly across the surveyed manufacturers, where the least expensive lens costs \$125 and the most expensive lens costs \$630 per warranty period. The average initial lens cost is \$184.76, and the median initial lens cost is \$180 (Figure 3).

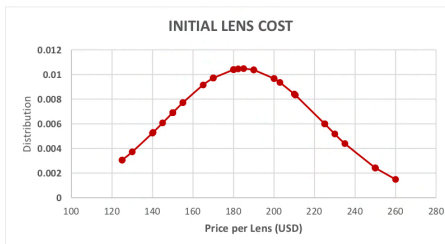


FIGURE 3. Distribution of practitioners' initial scleral lens cost.

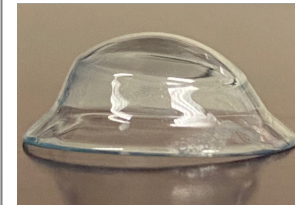


FIGURE 4. Optical prism customized into a scleral lens.

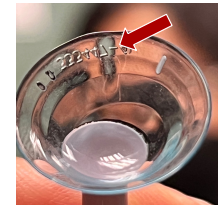


FIGURE 5. Channel customization in a scleral lens.

Conclusions

Contact lens manufacturers offer a variety of specific SL designs with different modifiable parameters. The cost to practitioners varies between the different designs; however, the warranty periods are fairly similar. Lens manufacturers continue to embrace technology advancements such as corneo-scleral topography and wavefront-guided optics. As the market and indications for SLs continues to grow, clinicians must look for the right lens design to properly meet their patients' needs. Practitioners should consider verifying manufacturer capabilities prior to ordering SLs with multiple advanced customization combinations. SL design offerings, consultant expertise, cost, and customer service are the primary ways manufacturers distinguish themselves.

Keywords: scleral lenses, customizations

Acknowledgements

We would like to thank the lens manufacturers listed above and Tyler's Quarterly for their time, valuable information, and generous support of optometric education at the University of Houston College of Optometry.