Keeping the needs of your business in our sight.
Maxim - A Life Changing Product

Maxim scleral lens is a semi-scleral design used in the treatment for restoration of vision and corneal health in patients with dry eye and corneal irregularities.

Ability

- **Restore** vision in a compromised cornea.
- **Create** an artificial tear layer to help and improve dry eye symptoms.
- **Provide** exceptional optics through the advancements of computer controlled equipment and 3-D design software.
- **Change** the life of your patients through better vision, lens comfort and patient care.
- **Comfort** is unsurpassed no matter how irregular the cornea.
CONCEPT

Our Maxim lens concept is simple. By adjusting the **optical zone** you can obtain the ideal clearance over the apex of the cornea out to the limbal region of the eye. In turn, this creates a reservoir of fluid under the lens maintaining corneal health.

Additionally, the **scleral landing area** is designed to smoothly transition onto the conjunctiva creating a stable well fitting lens.

Maxim scleral lenses have been developed to cover a diverse range of corneal shapes including advanced Kerataconus and Pellucid to Post Surgical and Corneal Trauma.

The Maxim design employs a proprietary multi-curve aspheric back surface to achieve optimal corneal alignment even in cases of markedly distorted corneas. The Maxim design consists of an extensive range of diameters and SAG values to allow for optimization of lens fit. Spherical and front surface toric designs are also available to maximize vision.

All Maxim scleral lenses are 100% custom made and come with a 6 month warranty.

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The standard Maxim trial set includes 12 diagnostic lenses in 2 different diameters with varying optic zones. This set usually will correct multiple types of corneal disorders.

The Maxim scleral lens can be custom designed for any patient and eye disorder.
MAXIM

The Maxim Scleral Lens is manufactured in Hyper Dk material providing exceptional oxygen transmissibility and clarity.

Maxim lenses are designed and manufactured using the most recent advancements in CAD/CAM software and computer controlled CNC lathing. This gives exceptional repeatability and 100% customization for each patient.

EDGE DESIGN

An important aspect of the Maxim design is the edge profile. It is well rounded to minimize impingement into the conjunctiva while allowing the lens to rest easily on the eye.
Lens Design
Maxim scleral lens is a semi-sclera design. It performs exceptionally well on dry eyes and irregular corneas including keratoconus, corneal trauma, pellucid marginal degeneration, penetrating keratoplasties, post LASIK and RK patients. It incorporates a proprietary multiple posterior curve system to obtain corneal alignment. Patients who wear Maxim will have unsurpassed comfort and clarity throughout the day. The standard trial lens set contains 15.9 mm and 16.4 mm diameters in non-fenestrated material.

Pre-Fitting Examination
It is recommended that corneal topography be done, taking note to the symmetry of the cornea. Your initial base curve should mimic the cornea's shape. (steep cornea steeper base curve; flat cornea flatter base curve)

Selection Lens Size
The standard Maxim trial lens set has the following diameters 15.9 mm and 16.4 mm. These designs are independent of each other and work well on wide variety of patients. The overall diameter of the lens should extend at least 2 mm beyond the limbal area of the eye. This is very important since Maxim needs to bear primarily on the sclera and not the cornea.
Choosing Base Curve and SAG

The most difficult parameter to determine on a distorted corneal is the initial trial lens. The Maxim lens is fit by SAG value and not base curve. However, the base curve does need to mimic the cornea. i.e.: use a steeper base curve on steeper corneas and flatter base curves on flatter asymmetric corneas such as Pellucid, LASIK, and RK eyes. Below is a suggested initial base curve / SAG guide. (Yellow denotes first lens choice).

<table>
<thead>
<tr>
<th>Moderate Cone</th>
<th>Severe Cone</th>
<th>Pellucid</th>
<th>Post Surgical (Sunken—Lasik / RK / PK)</th>
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<tr>
<td>Advanced Cone</td>
<td>Globus Cone</td>
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<td>7.50 bc / 15.9 / 4.73 SAG</td>
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A properly fit lens will have alignment over the cornea. The ideal vault will have 250 microns clearance over the steepest part of the cornea at initial insertion. Your goal is to find the minimum SAG Value that vaults the cornea with no apical bearing with a clearance of 250 microns (at the time of fitting before the lens has had an opportunity to settle).
Calculating Lens Power
Lens power is best determined by over-refraction. The spherical and or the cylinder value of the over-refraction are simply added to the trial lens power to determine the correct power.

Centre Thickness
Centre thickness is a function of lens design and should be calculated by the laboratory.

Fluorescein Pattern
Lens selection should be aided by an examination of the fluorescein pattern. It helps to place the fluorescein in cup of the lens at insertion. The most accurate way to determine the proper SAG is to evaluate a trial lens that has apical touch. If there is central bearing the SAG value should be increased by 0.1mm for every 1.0mm of touch. **You goal is to determine the SAG that vaults the cornea with no apical touch.** The ideal pattern will align cornea to the limbus and it will vault the steepest part of the cornea by 250 microns. Once that is obtained, a close evaluation of the periphery is needed. There should not be any excessive edge lift or worse impingement in the conjunctiva. If there is excessive lift or impingement in the periphery, the lens edge should be adjusted.

2 mm touch / 4.20 SAG

No Touch / 4.40 SAG

Too Flat / Heavy Central Bearing with Limbal Bubble
Increase SAG Value by 0.3 - 0.4mm
Bubbles
Sometimes at insertion a false bubble can be induced. It is very important when inserting the lens that it be filled fully with saline and placed on the eye with the head down and parallel with the table top. You do not want any bubbles as they will cause the cornea to become dry within those areas.

![Proper Position](image1)

![Induced Bubbles](image2)

Edge
A proper edge should not lift off of the sclera or more importantly impinge into it. An edge that lifts excessively will cause lens awareness while an edge that impinges can cause edema, redness and discomfort. If the edge is not aligned with the sclera recheck to make sure that you have an appropriate SAG that vaults the cornea. If you do have the appropriate SAG with an incorrect edge call our consultation department for advice on peripheral curve changes.

Ideal Fit
The lens should align the cornea with 150 microns of clearance after settling. There should not be any bubbles under the optical cap (too steep of a SAG) or over the limbus (too flat of a SAG). A Maxim lens will have very minimal to no movement. In addition, attention should be observed at the periphery. There should not be any conjunctival impingement or excessive edge lift with Maxim.

![Ideal 100 Micron Clearance After Settling](image3)

![Ideal Edge](image4)
Insertion & Removal

Make sure your patient understands the importance of proper insertion and removal. When inserting a Maxim it is important that the concave surface be fully filled with saline so as to reduce the risk of induced unwanted bubbles. Most patients find that holding the lens between the index and middle finger or using a lens insertion tool works best. Since Maxim tends to settle on the eye, it needs to be pre-loosened before removal. We recommend irrigating with saline and massaging the lens prior to removing the lens with a DMV suction cup. (Refer to our care and handling video on our website for more detailed instructions).
Troubleshooting

While not common, corneal edema may occur in some patients. A lens with too much vault can cause this. Make sure to re-evaluate your SAG value. **It should be the minimum SAG that vaults with no apical bearing (100-150 microns after settling).** Another cause may be that the periphery of the lens is impinging into the conjunctiva. If this occurs flattening the PC’s while maintaining the appropriate SAG is indicated. Lens awareness can occur if there is too much edge lift. Excessive edge lift is caused by either the PC’s being too flat or the lens SAG being too low. If excessive edge lift is observed you should first determine if the SAG is appropriate. Often when the SAG is increased, the edge will improve.

If the lens SAG is correct then a steeper periphery is indicated. The two most common causes for SPK are either from preservatives in the solution or excessive bearing on the apex. Because these lenses have very little or no movement, tear exchange is very slow to occur. Therefore, it is very important that a non-preserved saline be used when inserting. This will eliminate any possibility of chemical irritation. On rare occasions metabolic debris accumulation can be an issue. Usually the patient will complain of decrease acuity after eight to ten hours wear. If this occurs have the patient remove, clean and re-insert during mid-day. Excessive redness can be a sign that the lens is fitting tight. Patients may complain that their wearing time is limited to only a few hours a day. Recheck the SAG to make sure it is at 150 micron apical vault (after settling) and adjust if necessary. If the SAG is appropriate then re-design with a flatter periphery.

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<tr>
<th>ISSUE</th>
<th>CAUSE</th>
<th>RESOLVE</th>
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<tr>
<td>Corneal Edema</td>
<td>Too much vault</td>
<td>Re-evaluate lens SAG with fluorescein. Decrease SAG</td>
</tr>
<tr>
<td>Corneal Edema</td>
<td>Lens edge impingement</td>
<td>Flatten PCs/Maintain appropriate SAG</td>
</tr>
<tr>
<td>Excessive Edge lift</td>
<td>Low SAG</td>
<td>Re-evaluate lens SAG with fluorescein. Increase SAG</td>
</tr>
<tr>
<td>Excessive Edge lift/with correct SAG</td>
<td>Flat PC’s</td>
<td>Steepen PC’s</td>
</tr>
<tr>
<td>SPK</td>
<td>A preservative solution has been used</td>
<td>Must use preservative free solutions</td>
</tr>
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<td>SPK</td>
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<td>Decreased acuity</td>
<td>Metabolic debris</td>
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Troubleshooting—continued

**Fitting Pearls**
- Lens Diameter should be at least 2mm larger than limbal area of the eye.
- Your 1st trial lens should be flat fitting. That way, you can very accurately adjust the SAG up.
- Central bearing, edge lift and/or limbal bubbles indicate a flat fit.
- Increase SAG value if there is a central bearing (0.1mm for every 1.0mm of bearing).
- Deep central pooling or central bubbles indicate a steep fit.
- Decrease SAG value if you have a steep fit.
- Ideal fluorescein pattern will be aligned at 150 microns of clearance after settling.
- Edge should not impinge or lift excessively off of the sclera.

*Your goal is to find the minimum SAG Value that vaults the cornea with no apical bearing (150microns after settling / 250 microns at insertion).*

**Quick Fit Guide**

**STEP 1:** Make sure the lens is large enough. The lens should be 2 mm beyond the limbus and should look like a large soft lens on the eye.

**STEP 2:** *This step is most important.* Find the minimum SAG value that vaults the cornea with no apical touch. If there is apical touch, increase the SAG value (.1mm SAG for every 1.0mm of touch) until the lens vaults the cornea 250 microns. (Clearance is best seen with a thin white slit beam. The green fluorescein band should be 1/5 as thick as a normal corneal thickness or as thick as the lens thickness.)

**STEP 3:** Check the edge. It should not impinge or lift excessively off the sclera.

**STEP 4:** Over refract for final correction.

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**Telephone - Technical Support - 800-525-2470**