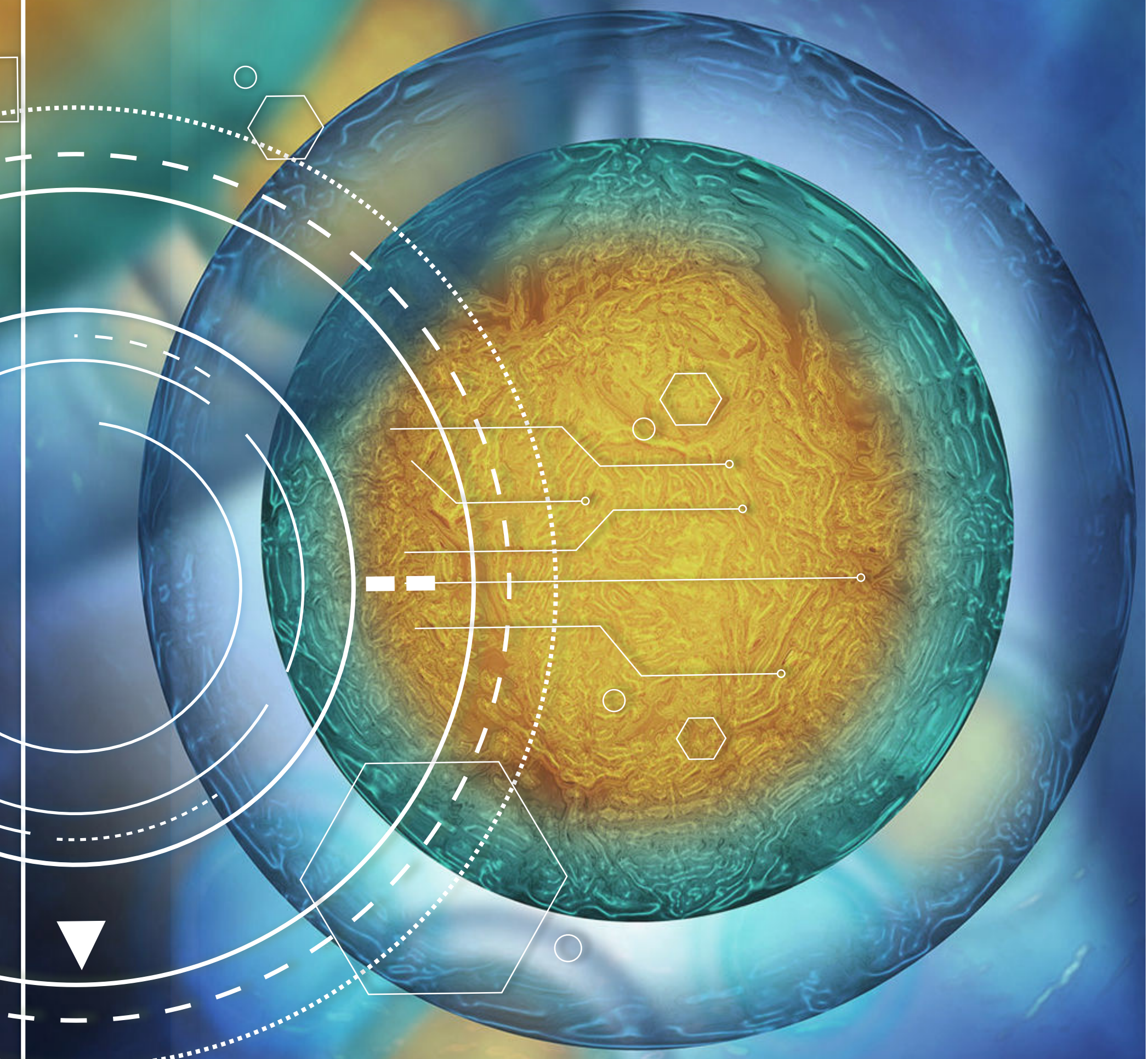
Edition 2
August 2025

McAsfeer*

KeratoGenius

Custom Medical Device

Scleral Contact Lenses



SILVER LINE LABORATORIES

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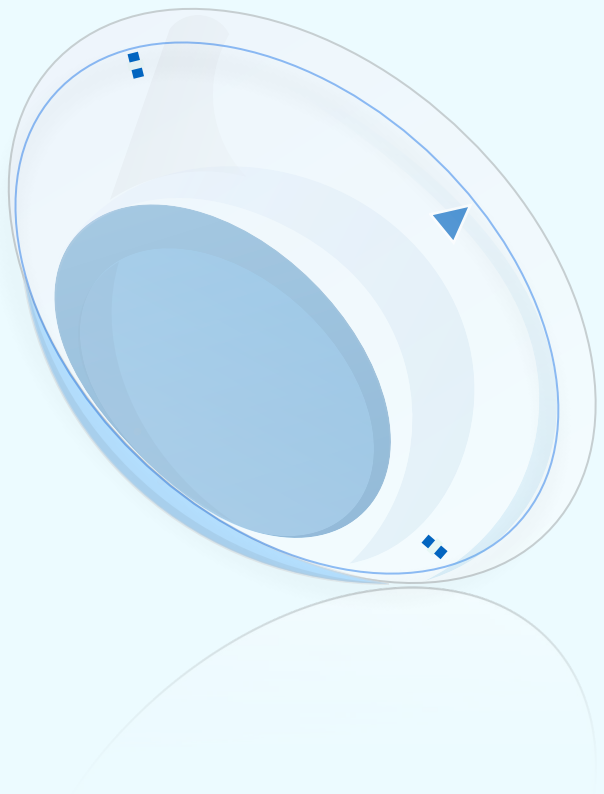
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SCLERAL LENS

Scleral lens are advanced custom-made contact lenses that provide superior comfort and visual clarity by addressing a wide range of corneal irregularities. This large-diameter rigid contact lens, known as a scleral lens, works by resting on the sclera, the tough, white outer layer of the eye which is less sensitive than the cornea. Because the lens extends beyond the limbus (the border between the cornea and sclera), and vaults over the cornea, It maintains a tear reservoir without touching the cornea or limbus. Hence Provides uniformity to all types of irregular corneal surface and aiding in visual and ocular surface rehabilitation.

Scleral lens offer numerous benefits, including the potential to delay or even prevent the need for surgical intervention in patients with advanced corneal conditions. Historically, fitting scleral lens was limited to a few specialists, but recent advancements in lens design and manufacturing have expanded access to this technology. Today, scleral lens are not only more readily available but are also:

- Improved design for optimal fit and function.
- Manufactured with greater consistency and precision
- More cost-effective
- Constructed from advanced materials that improve wearability and ocular health.



Which has led to:

- Healthier eyes
- Longer wear time
- Easier fitting

As a result, scleral lens can now be used to manage a wider range of conditions. However, scleral lens fitting remains a developing field, and this case report series aims to share valuable insights and user experiences.

Benefits of Scleral Lens:

Improved vision
Enhanced comfort
Increased oxygen flow to the cornea
Protection of the cornea from further damage / mechanical abrasions.
Ability to address complex eye conditions
Act as a therapeutic in various eye conditions.
Help to rehabilitate the ocular surface.

How does scleral lens work ?

★ Vaulting over the cornea

The scleral lens fitting process ensures that the lens vaults over the cornea without making contact. The space between the lens and the corneal surface is filled with a preservative-free saline solution, forming a tear reservoir. This reservoir continuously lubricates the cornea, while also creating a smooth optical surface to correct corneal irregularities. By avoiding direct contact with the cornea, the lens minimizes mechanical friction, reducing the risk of damage and significantly enhancing comfort for the wearer.

★ Saline-filled Reservoir : The space is filled with Saline (Artificial tear reservoir)., which helps to:

- Distribute pressure evenly
- Provide consistent oxygen flow to the cornea
- Provide lubrication to the eye
- Protect the cornea from further damage

★ **Scleral alignment :**

The lens aligns with the sclera (white part of the eye), providing stability and comfort.

★ **Even pressure distribution :**

This even pressure distribution minimizes discomfort, supporting natural eye movement and overall ocular health.

★ **Oxygen transmission**

The lens allows for oxygen to pass through, promoting healthy corneal function.

★ **Comfortable wear**

The lens is designed for comfortable wear, allowing for:

- Easy movement
- Minimal irritation
- Long-lasting wear

By working in this way, scleral lens can help to:

- Improve vision
- Enhance comfort
- Protect the cornea
- Address complex eye conditions

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The primary indication for fitting scleral lens is to correct irregular corneas and restore vision. The largest segment in the irregular cornea category is corneal ectasia, which can be subdivided into two groups.

★ *Primary corneal ectasia*

It includes conditions such as Keratoconus, Keratoglobus, Pellucid marginal corneal degeneration (PMCD) and Terriens Marginal Corneal Degeneration (TMCD).

★ *Secondary corneal ectasia*

It includes Post-refractive surgery ectasia such as post LASIK, post LASEK, Post Traumatic scarred Corneas, post PRK and post RK.

After non surgical treatment for keratoconus

★ *Corneal collagen cross-linking [C3R]*

Post C3R corneal haze or scar due to infection can cause vision deterioration, which can be taken care with scleral lens.

After the surgical intervention

★ *Intacs / corneal implants*

These can include glare, halos around lights, reduced night vision, fluctuating vision and other complications includes loss of visual acuity that can be very easily answered with scleral lens.

★ *Cornea transplant*

Post-penetrating keratoplasty (PK) or Deep Anterior Lamellar Keratoplasty (DALK) cases with high levels of astigmatism, which cannot be corrected effectively with spectacles, can often benefit from scleral lenses to significantly restore vision.

★ *Post trauma corneas*

Eyes with significant scarring and severely irregular corneas due to trauma can often achieve excellent vision with scleral lens - often to the surprise of both the patient and the practitioner.

★ *Corneal perforation after trauma*

Corneal perforation after trauma resulting in a large corneal scar in which scleral lens improved the vision dramatically.

Corneal scar post Infection

★ *Marginal Degeneration / dystrophies*

In cases of marginal degeneration or corneal dystrophies following a corneal ulcer, patients may experience significant corneal scarring and irregularities. Conditions such as healed peripheral ulcerative keratitis (PUK), Salzmann's nodular degeneration, and Terrien's marginal degeneration can often achieve notable visual improvement with scleral lenses

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INDICATIONS

★ *Herpes simplex*

Corneal scars as a result of corneal infections, like Herpes Simplex, are frequently indications for fitting scleral lens to restore the vision and help in maintain the ocular surface.

★ *Trophic eye conditions*

Decrease in corneal sensitivity these corneas can also develop ocular surface disease and trophic conditions, which scleral lens can help to manage corneal degeneration.

★ *Ocular surface disease*

Patients have been shown to particularly benefit from scleral lens because of the retention of a fluid reservoir behind the scleral lens. Sjögren's syndrome is a common scleral lens indication. Under this category also fall conditions such as persistent epithelial corneal defects, Steven's Johnson Syndrome, Graft Versus Host Disease, ocular cicatricial pemphigoid, neurotrophic corneal disease and atopic keratoconjunctivitis.

★ *Exposer keratitis*

Severe keratitis sicca because of lagophthalmus as a result of a cranial nerve VII - facial paresis after a brain tumor as well as a ptotis. In few cases of exposer keratitis, after traumatic /surgical intervention, dramatically shown visual and ocular surface rehabilitation.

An addition to many other requirements

★ *Visual enhancement*

In some cases, patients with high refractive corrective errors which cannot be successfully fit with corneal lenses can benefit from scleral lens.

★ *Sports and outdoor activities*

Any weather condition or out door activities does not effect scleral lens performance even during water sports, scuba diving, adventure, field and tracks.

This shows that even in severely compromised corneas, scleral lens can prove beneficial in creating a moist environment to nurture the cornea and reduces mechanical abrasions which enhance ocular health, protect cornea, improve comfort and correcting vision.

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Scleral lens are often used to treat various corneal conditions. However, certain contraindications or situations may make the use of scleral lens inappropriate or risky. Before prescribing scleral lens, an eye care professional should typically conduct a thorough evaluation to ensure that none of these contraindications apply or can be managed effectively. Here are some key contraindications:

Anterior Segment

- Corneal Edema : Corneal edema or swelling of the cornea, can worsen with the use of scleral lens due to reduced oxygen transmission.This is particularly concerning in patients with conditions like Fuchs' endothelial dystrophy or other endothelial dysfunctions. Patients at high risk for corneal hypoxia may not be good candidates.
- Compromised Corneal Endothelium :The corneal endothelium is crucial for maintaining corneal transparency by regulating fluid levels. If the endothelium is compromised (e.g., due to previous surgery or trauma), scleral lens might reduce oxygen transmission further, leading to corneal decompensation.
- Anterior Segment Inflammation : Conditions like uveitis, iritis, keratitis, conjunctivitis, or other active ocular infections of the anterior segment, may worsen with the use of scleral lens. The lenses could irritate the eye or exacerbate the inflammatory process.
- Anterior Segment Trauma or Surgery : Recent trauma or surgery involving the anterior segment may contraindicate the use of scleral lens due to the risk of exacerbating healing wounds, introducing infection, or causing additional trauma.
- Poor Tear Production (insufficient aqueous tear secretion): Patients with poor tear production (inadequate aqueous tear secretion may experience discomfort and improper fit or performance with scleral lenses. The lack of adequate tear film can result in reduced lens lubrication, leading to dryness, irritation, or potential long-term corneal damage.

Posterior Segment

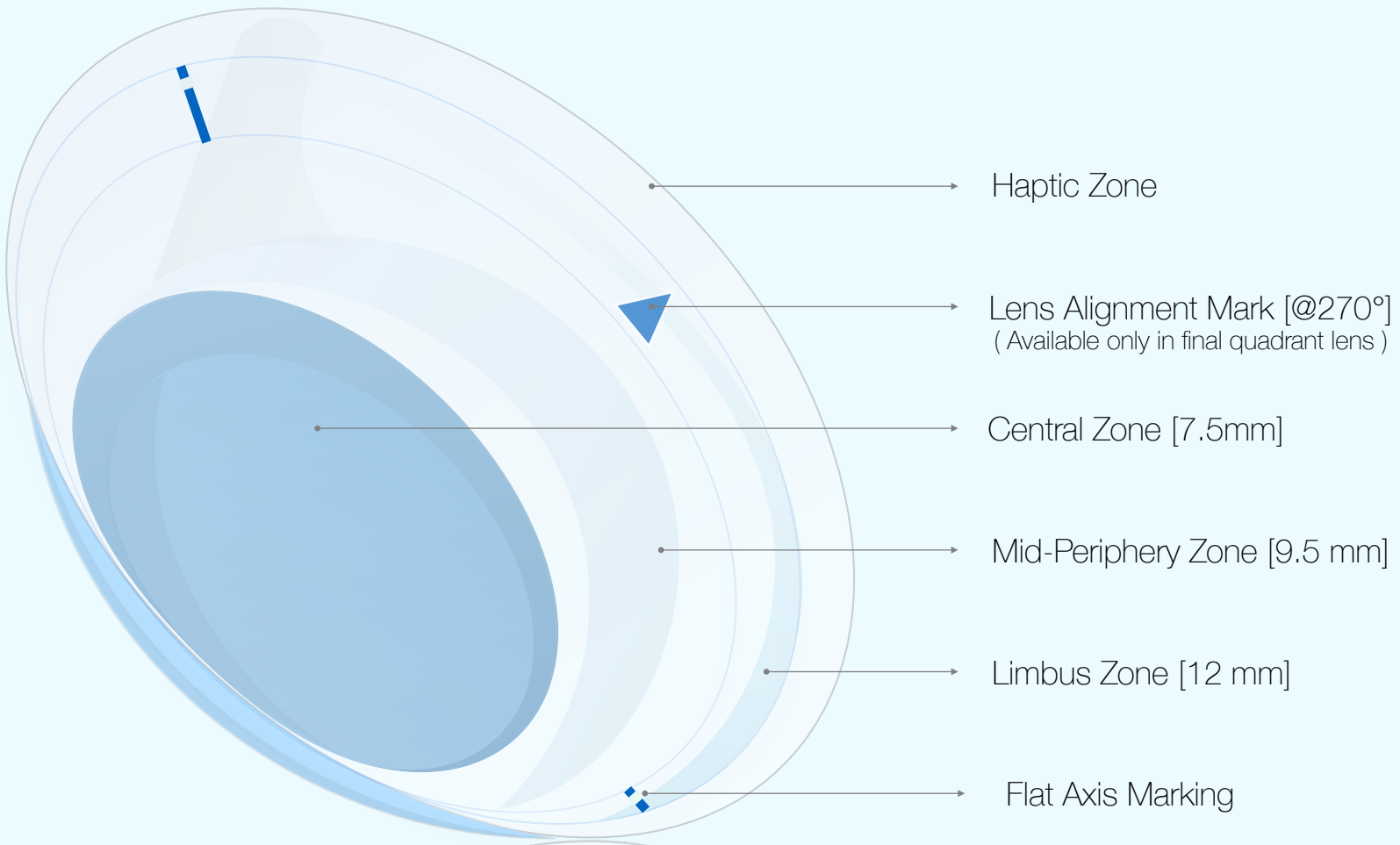
- Elevated Intraocular Pressure (IOP) : Scleral lens can affect the aqueous humor exchange and may potentially increase intraocular pressure in some individuals. Patients with glaucoma or other conditions leading to elevated IOP need careful monitoring, as increased IOP could exacerbate these conditions.

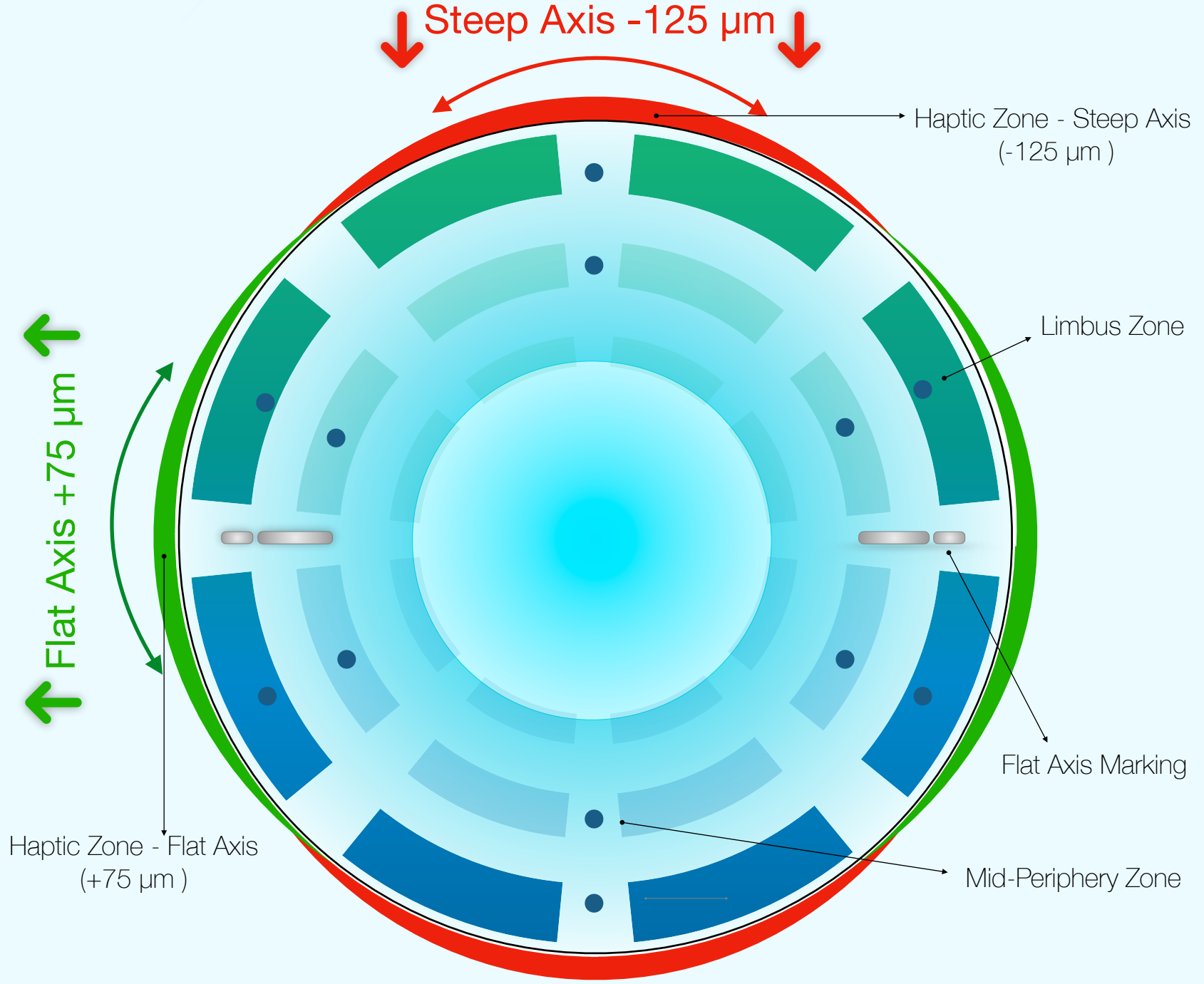
Compliance

- Scleral lens require regular follow-up and strict adherence to cleaning protocols and wearing schedule required for scleral lens. Patients who may not comply with these requirements may face increased risks of infection, or lens-related complications.

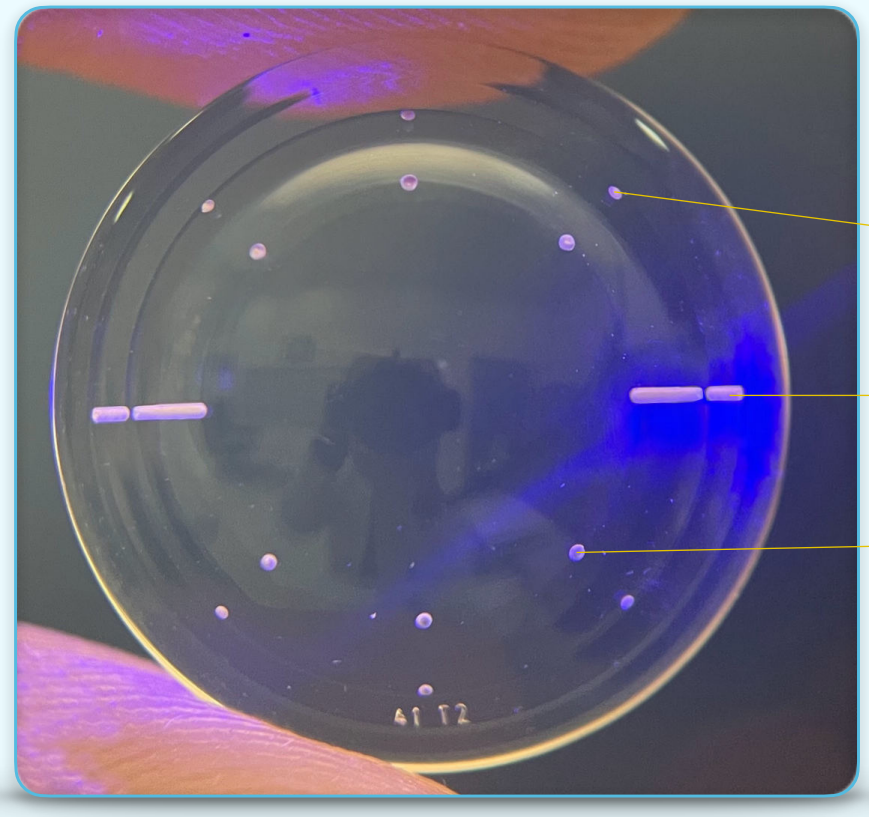
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LENS GEOMETRY





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Slit Lamp view of the Lens

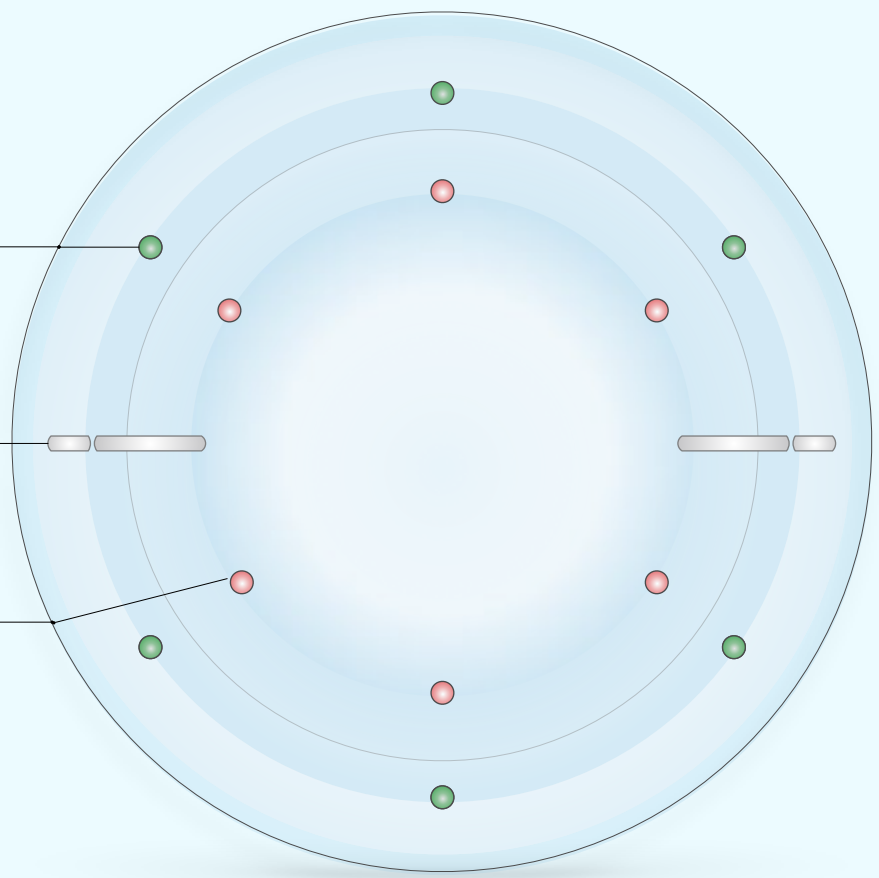
Limbal Zone

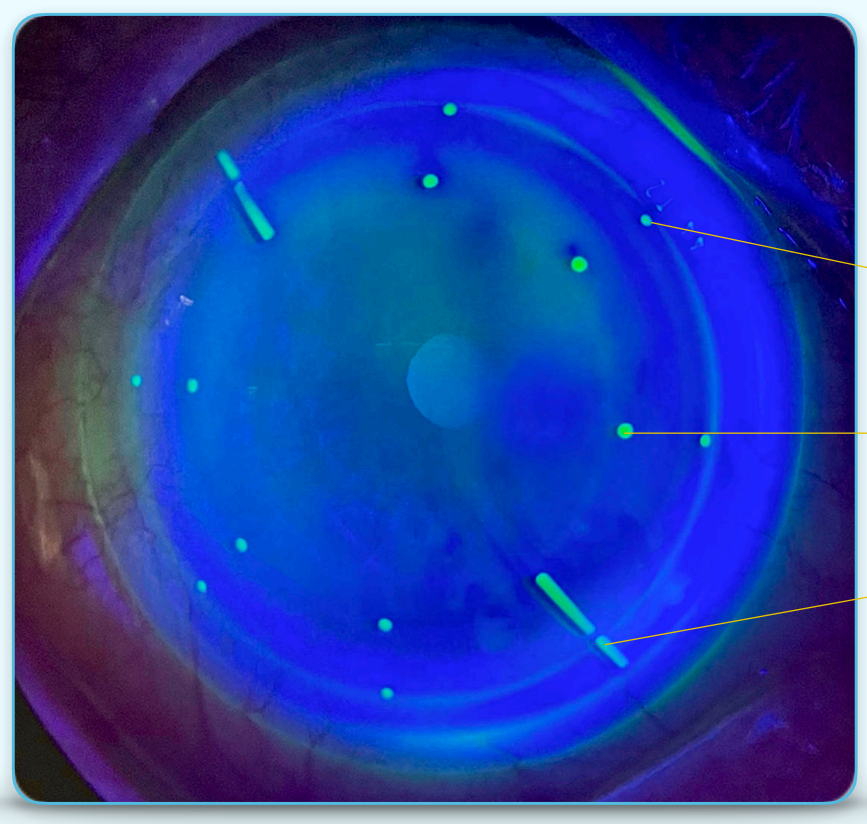
Flat Axis Marking

Mid Peripheral Zone

Lens Geometry

Green Dot	Limbal Zone
Axis	Flat Axis Marking
Red Dot	Mid Peripheral Zone





Lens in the patient eye under Cobalt blue light with fluorescent dye

Limbal Zone

Mid Peripheral Zone

Flat Axis Marking

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MATERIAL SPECIFICATION

Boston®

Material	Boston XO2
Material Generic Name	hexafocon B
Material Type	Fluoro silicon acrylate
Oxygen Permeability (Edge Corrected*)	141
Oxygen Permeability (Non-Edge	161*
Wetting Angle (Capative Bubble)	38*
Wetting Angle (Dynamic Contact Angle A/	50/40*
Hardness-Shore D	78
Hardness-Rockwell	101
Index Of Refraction	1.424
Specific Gravity	1.19
Silicon Content	12-13%
Modulus	1160 MPa
Toughness	2.7 MNm/m3
Modality	Daily Wear
Saline Absorption	0.3%
UV Absorption	Available
Available Handling Tint	Clear & Blue
Packing	Blister

Contamac®

Material	Infinite	Extra
Material Generic Name	Tisilfocon A	Roflufocon D
Material Type	Optimum Infinite	Optimum Extra
Oxygen Permeability (Edge Corrected*)	180	100
Wetting Angle (Dynamic Contact Angle A/R)	81	81
Hardness-Shore D	80.7	76
Index Of Refraction	1.43	1.43
Modulus	1500 Mpa	1250 MPa
Modality	Daily Wear	Daily Wear
UV Absorption	Available	Available
Available Handling Tint	Blue & Green	Blue & Green
Packing	Blister	Blister

Selection of first trial lens (sagittal depth) on the bases of indications

Trial set contains 20 lenses with Toric Haptic [Sag. 4100µm to 6300µm]

EARLY

4100µm to 4550µm

Suggested Indications

- Post Ulcer
- Dry Eyes
- Traumatic
- Corneal Dystrophy
- All Epithelial Defects
- Early keratoconus
- High Corneal Astigmatism
- Post Refractive

MODERATE

4600µm to 4900µm

Suggested Indications

- PMCD
- Post C3R
- Traumatic
- Ectasia
- Post RK
- Post Herpetic
- Sjögren's Syndrome
- Keratoconus
- Stevens Johnson Syndrome
- Post PK

ADVANCE

5000µm to 5500µm

Suggested Indications

- Ectasia
- Advanced PMCD
- Keratoconus
- Post PK

SEVERE

5700µm to 6300µm

Suggested Indications

- Keratoglobus
- High Ectasia
- Advanced Keratoconus
- Post Hydrops

Irregular cornea obeys no fitting rules, vault/clearance assessment on slit lamp is very important.

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SELECTION OF FIRST TRIAL LENS

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FITTING FLOW CHART

Unaided Visual Acuity & Anterior Segment Evaluation

1. Check for epithelial defect and ocular health before the trial start

Selection of first trial lens

2. Fill the lens with saline added with fluorescein

Lens Insertion On The Eye

3. Lens placement should be very gentle to avoid insertion pressure

Initial Fitting Assessment

4. On Slit-lamp under white light

Initial Dynamic Fit

5. Check Insertion Pressure/ air bubble

Initial Static Fit

6. Check for Appropriate Clearance

Manifest Refraction

7. Immediate after the lens insertion

Static & Dynamic Fitting Assessment

8. Check for Appropriate Clearance under white light and lens rotation

- **Central** — Vault/Clearance 300+ µm
- **Mid-Periphery** — Vault/Clearance 250+ µm
- **Limbal** — Vault/Clearance 125+ µm
- **Edge** — Check Flat Axis Position

9. Make patient wait for 4-5 hours with the lenses on (Before finalising the final fit)

Check List For Final Lens Fitting Assessment (After minimum 4-5 hours lens wear)

1 Refraction · 2 Presence Of Debris · 3 Flat Axis Position · 4 Clearance C/M/L · 5 Blanching · 6 Leakage Of Fluo. · 7 Conju. Staining

Manifest Refraction

1. With fogging only & check pin hole at the end (10)

Presence Of Debris

2. Check for debris presence in the reservoir (11)

Flat Axis Position

3. Check lens orientation and stability (12)

Final Clearance C/M/L

4. Check clearance under white light (13)

- **Central** — Vault/Clearance Aprox 250 µm
- **Mid-Periphery** — Vault/Clearance Aprox 200 µm
- **Limbal** — Vault/Clearance Aprox 75 µm

Edge

Check for Lens landing/behaviour on conjunctiva

Blanching

5. Check blanching of blood vessels at sclera

Impingement

14. Blanching at vest last edge of the lens

Compression

15. Blanching at middle of the lens landing zone

Leakage Of Fluo.

6. Check fluo. entrance point at there edges (16)

Lens Removal

Remove the lens from 12 O' clock in the eye (17)

Conjunctival Staining

7. Check Conjunctival Staining post lens removal (18)

✓ Mention all the above parameters on the trial assessment sheet and calculate them to place the order.

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Precautions during scleral lens fitting assessment

Precautions During Scleral Lens Fitting Assessment

Unaided Visual Acuity & Anterior Segment Evaluation

1

Examine the anterior segment and overall ocular health. Ensure there are no epithelial defects such as corneal melt, Dellen, or Bullaes etc.., Consult an ophthalmologist for approval of any ocular pathology before commencing the trial.

Selection of first trial lens

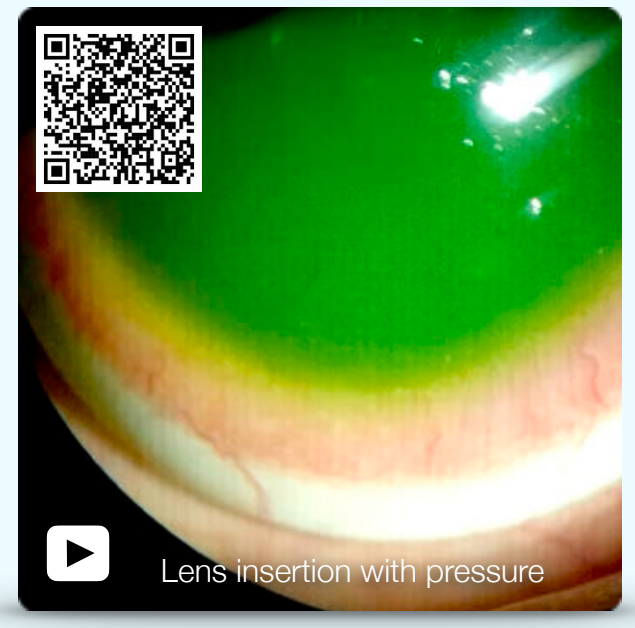
2

As irregular cornea / ocular surface does not conform to standard fitting rule. The suggested- “selection of first trial lens” (pg no.08) may help you approach the desired fit. Use a slit lamp (with white light only) to assess the vault and clearance at the corneal apex. Adjust the trial lens as needed until the appropriate clearance is achieved.

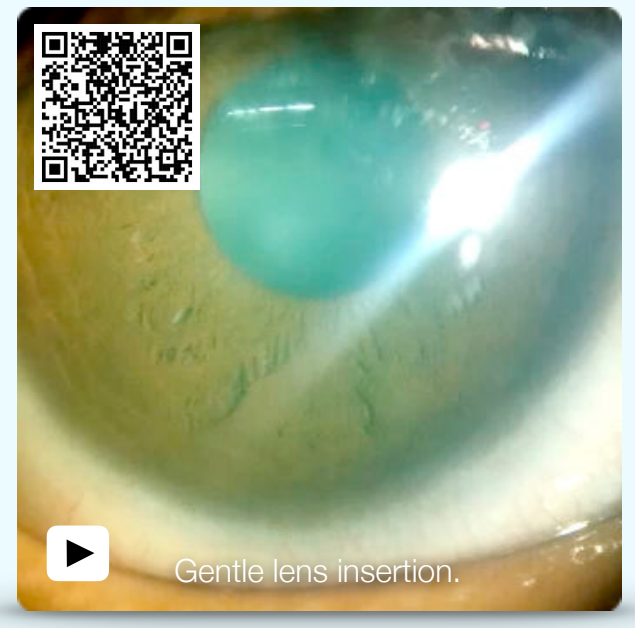
Lens Insertion On The Eye

3

A common issue we have observed is 360° impingement on the sclera and conjunctival crowding immediately after lens insertion, which may result from high insertion pressure. This can cause pain and redness in few hours after the trial and may lead the practitioner in the wrong direction for customization.



Conjunctival blanching due to incorrect (hard) lens insertion.



Clear conjunctiva (no blanching observed) post gentle lens insertion.

Initial Fitting Assessment

4

When examining the vault or clearance with florescent after lens insertion, always use white light instead of the blue cobalt filter. White light enhances the contrast between the cornea and the vault, making it easier to assess clearance at the corneal apex and the entire corneal surface. The blue cobalt filter can reduce contrast and make it more difficult to evaluate the cornea accurately.

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FITTING PRECAUTIONS

Initial Dynamic Fit

5

Dynamic Fit- Check for air bubbles, foreign bodies and there should not be any lens insertion pressure and check the lens surface for any dry spots. Incase of any above condition, remove the lens and clean and reinsert.



Initial Static Fit

6

Static Fit- Check for appropriate vault clearance underneath the lens before starting the prolonged trial. Change the sag. until achieve the appropriate vault/clearance.



Manifest Refraction

7

Check the refraction over the lens (ROL) using the fogging method for distance vision, and also assess unilateral near vision to cross-check your distance refraction. In cases such as corneal opacities, where the reflex may not be visible with an auto refractor or retinoscope, subjective refraction becomes crucial for determining accurate refraction.

Important: An unwanted near addition could result from over- or incorrect acceptance of distance vision. To address this, repeat the refraction using fogging to ensure accuracy.

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Static & Dynamic Fitting Assessment

8

Scleral lens are placed on the conjunctiva (soft tissue) and may sink upto approximately 100 to 125 microns into the conjunctiva. As a result, the clearance between the lens and the cornea may decrease by the same amount. Therefore, it is important to start with a higher vault during the initial trial to accommodate this potential change.
Please note down the flat axis position after the refraction, which should be done approximately 20-25 minutes after the lens insertion.

Make patient wait for 4-5 hours with the lenses on (Before finalising the final fit)

9

To ensure a thorough evaluation of the final fitting, patient should give sufficient time. The patient should wear the lens for 4-5 hours before finalising the parameters. This duration will provide a clear assessment of how the lens sinks and it's behaviour with the eye including any blanching and movement on the conjunctiva.

Check List For Final Lens Fitting Assessment (After minimum 4-5 hours lens wear)

It is crucial to follow the provided checklist, as it addresses all the essential points necessary to achieve an optimal fit and enhance the lens performance on the eye.

1 Manifest Refraction

- Refraction after 4 hours is important, as the lens may shift, potentially introducing a minimum of +0.50D compared to the initial refraction, according to SAM and FAP calculations.
- During the waiting period, patients might accommodate to the lens power while reading or frequently checking their vision, which can lead to a false acceptance of the final refraction.

10

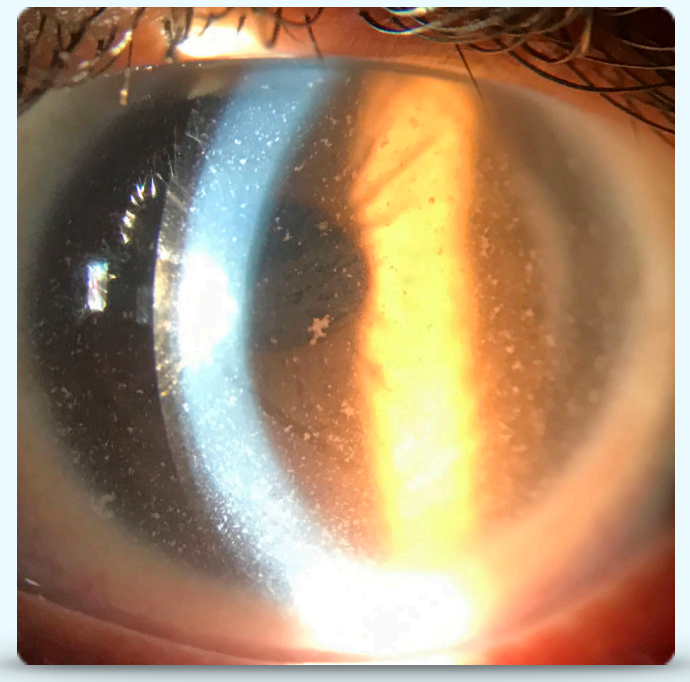
- Therefore, it is essential to adhere to the first refraction, which should be conducted within 5-10 minutes after lens insertion, ensuring no accommodation has occurred.
- Additionally, always check unilateral near vision to confirm the correct distance refraction, and perform the duo-chrome test.

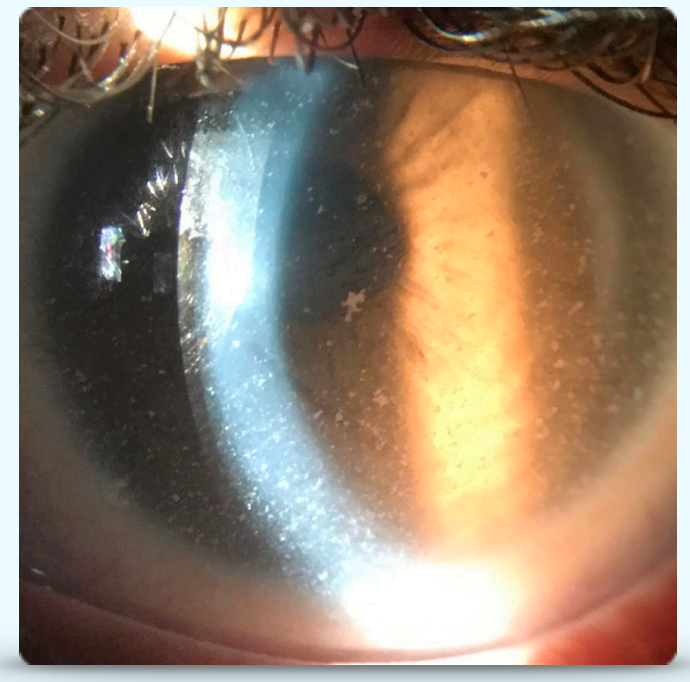
2 Presence Of Debris

11

Debris is a critical tool for assessing lens behaviour in relation to the conjunctiva. The presence of debris indicates either excessive tear exchange (suggesting a loose landing zone) or excessive tightness of the lens edges (resulting in heavy blanching). These issues can be specific to different quadrants of the lens.

2 Presence Of Debris





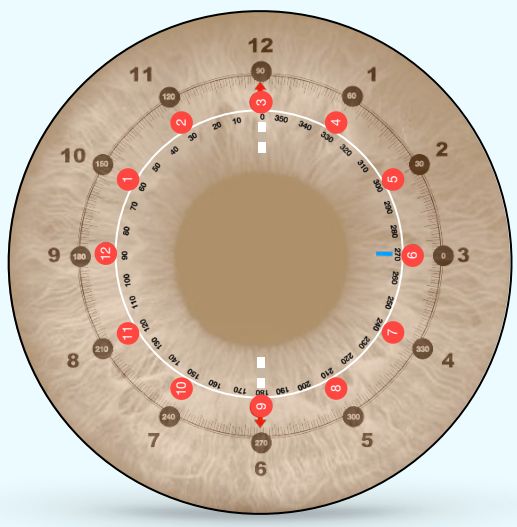
Debris are the formation of tiny white particles floating in the reservoir under neath the lens.

3 Flat Axis Position

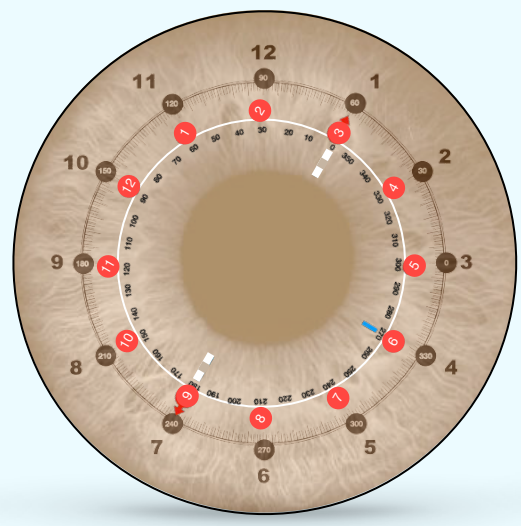
12

The Kerato Genius lens features a toric haptic (edge) with one steep and one flat oblique axis, defined by two lines along the flat meridian. Accurate assessment of the flat axis position on the eye is crucial for customising the lens to meet specific requirements.

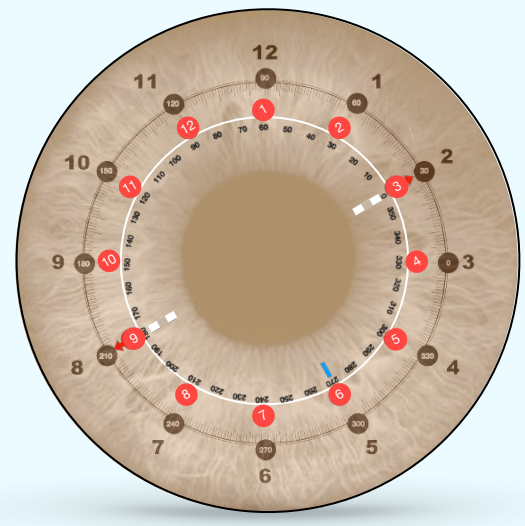
Note the flat axis position on the KG case sheet and divide the lens into four quadrants at the 3, 6, 9, and 12 o'clock positions.



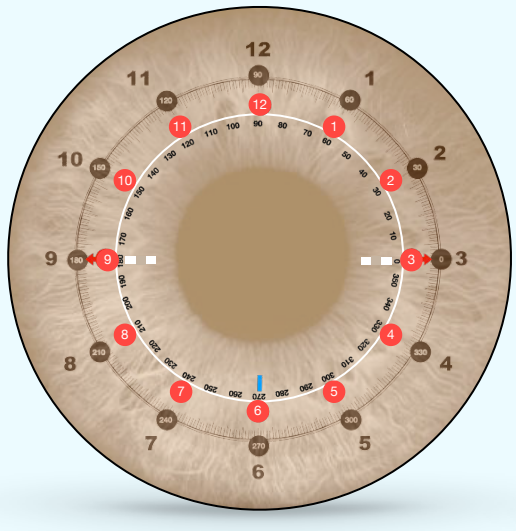
12-6 o’ clock



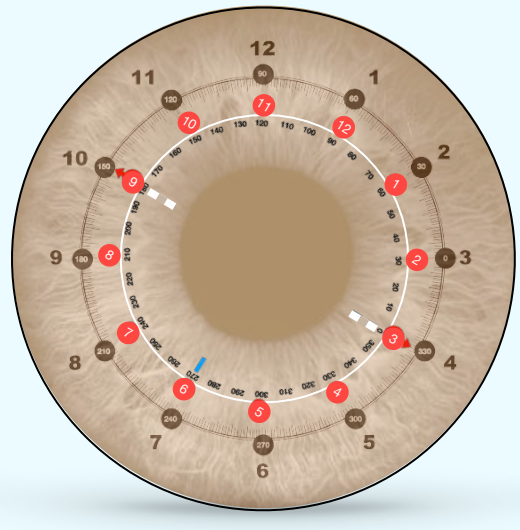
1-7 o’ clock



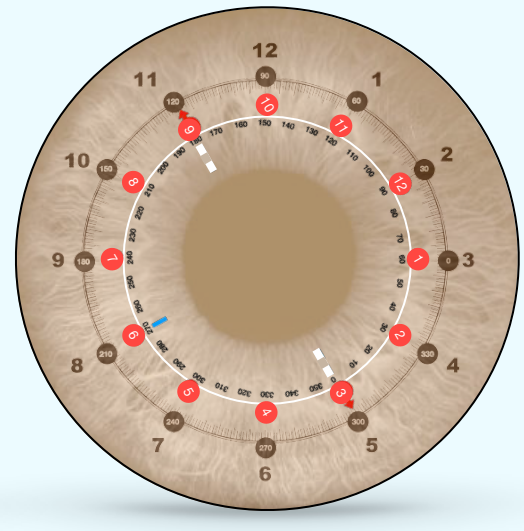
2-8 o’ clock



3-9 o’ clock



4-10 o’ clock



5-11 o’ clock

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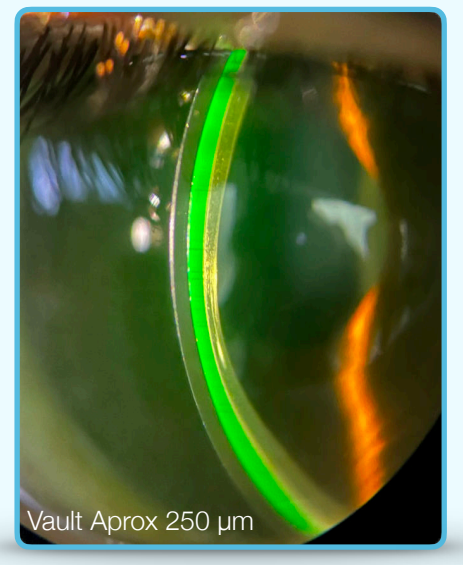
4 Final Clearance C/M/L

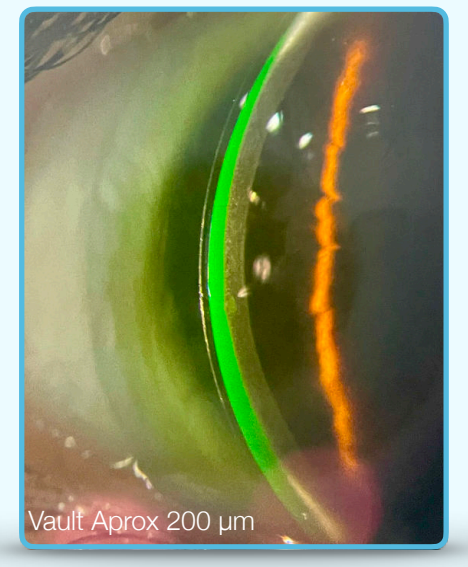
13

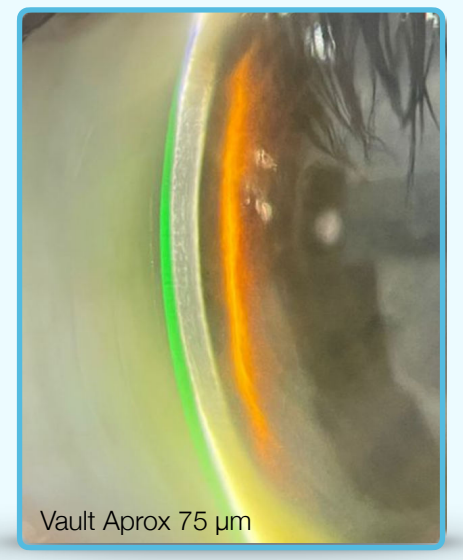
The lens clearance is divided into three zones: Central (C), Mid Periphery (M), and Limbal (L). To achieve optimal clearance, each of these zones can be adjusted independently based on specific requirements. The final clearance should ideally be:
250 microns at the apex of the cornea
200 microns in the mid periphery
75 microns at the limbal zone (an additional 50 microns of clearance is also acceptable)

Note: In cases of irregular corneas, the apex may not be in a specific location and could be found in various regions such as a central cone, PMCD, post-RK (Radial Keratotomy), or other forms of ectasia. To accurately assess the apex, use thorough examination techniques such as slit lamp evaluation or Pentacam mapping.

Vault- Optimal Fit

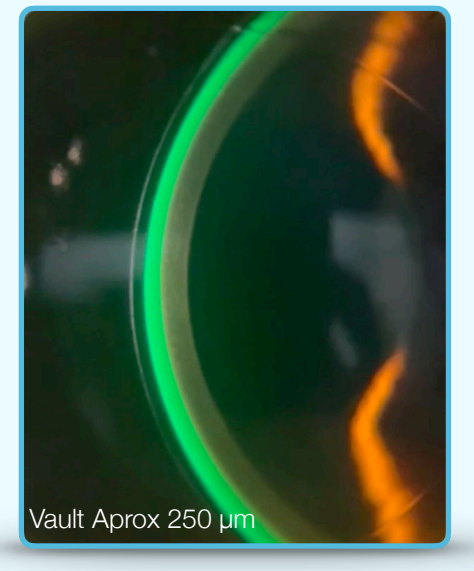


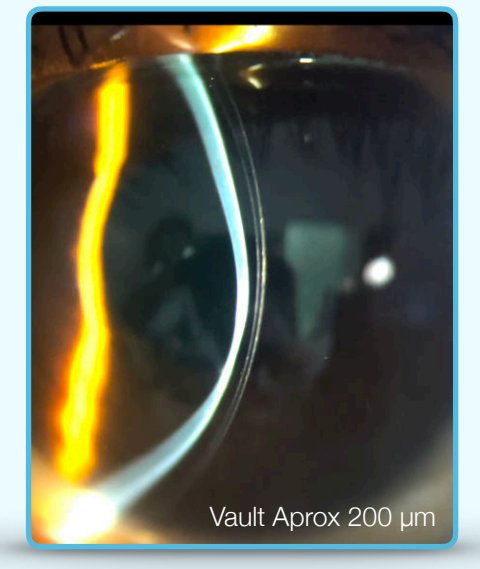


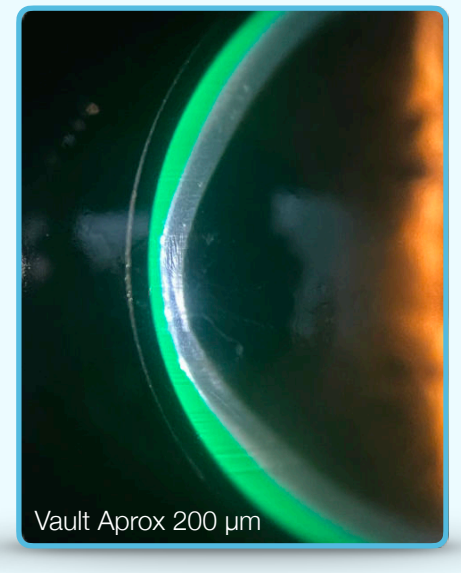


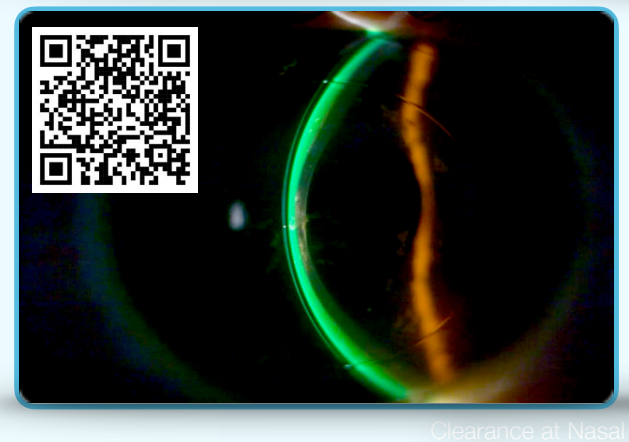
Centre | Mid Periphery | Limbal

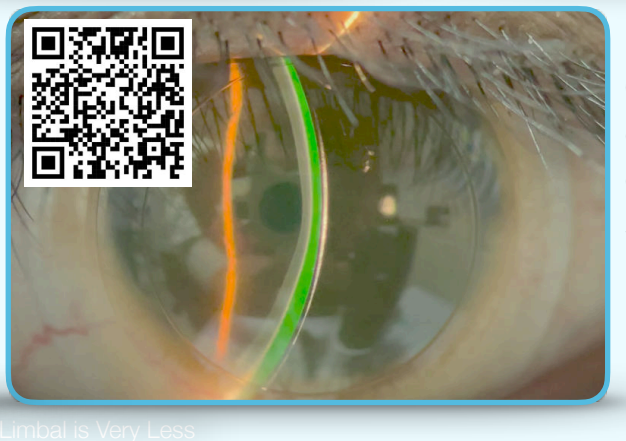
Central vault -Different corneal thickness











Overall clearance evaluation on slit lamp under white light

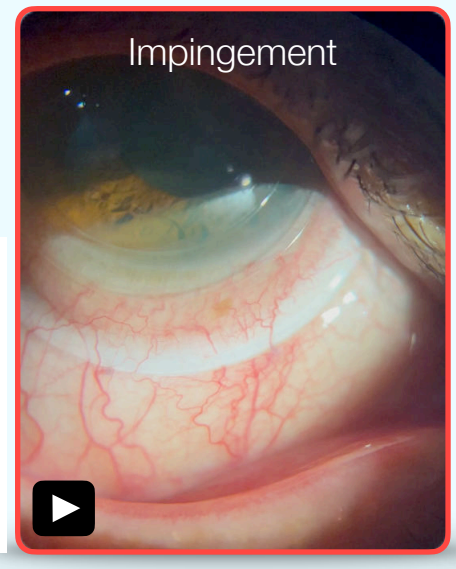
Clearance at Nasal Limbal is Very Less

5 Blanching

Blanching, whitening or loss of colour in the blood vessels of the eye's conjunctiva, can indicate that the lens is putting too much pressure on the sclera in certain areas. This may happen if the lens fit is too tight or if there are localised areas of increased pressure due to the shape of the lens or the sclera. Blanching can be subdivided into two categories: Impingement and Compression.

14 Impingement

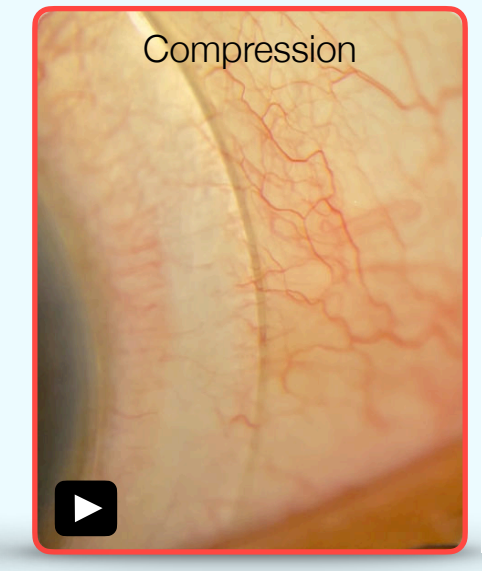
A very edge of the lens is digging in or pinging into the conjunctiva cause impingement. It appears white cut line at the edges of lens.



Increasing the edge lift will release the pinging and allow the blood flow underneath the lens. It could be area specific, which may require quadrant specify modifications.

15 Compression

Compression is the result of excessive pressure from the lens on the conjunctiva.



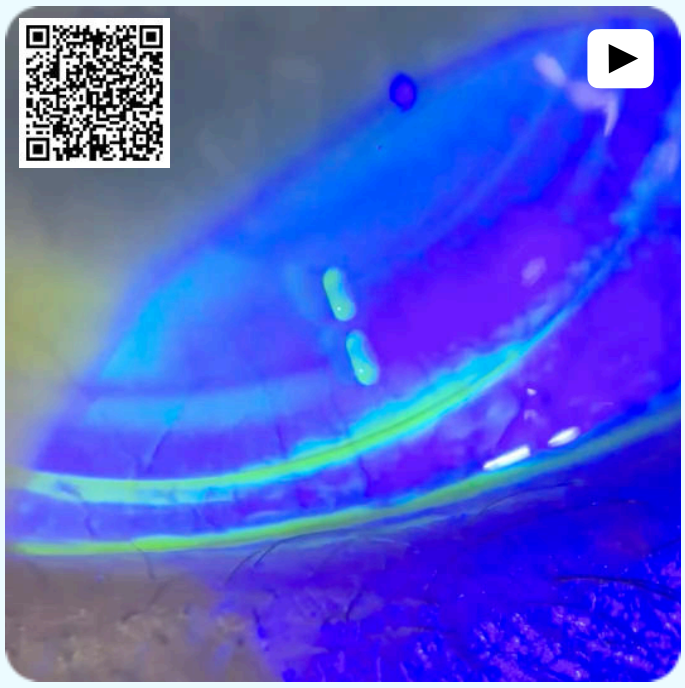
It generally happens due to excessive edge lift (mid haptic compression) or excessive pressure adjacent to the edge of the lens.

False Impingement

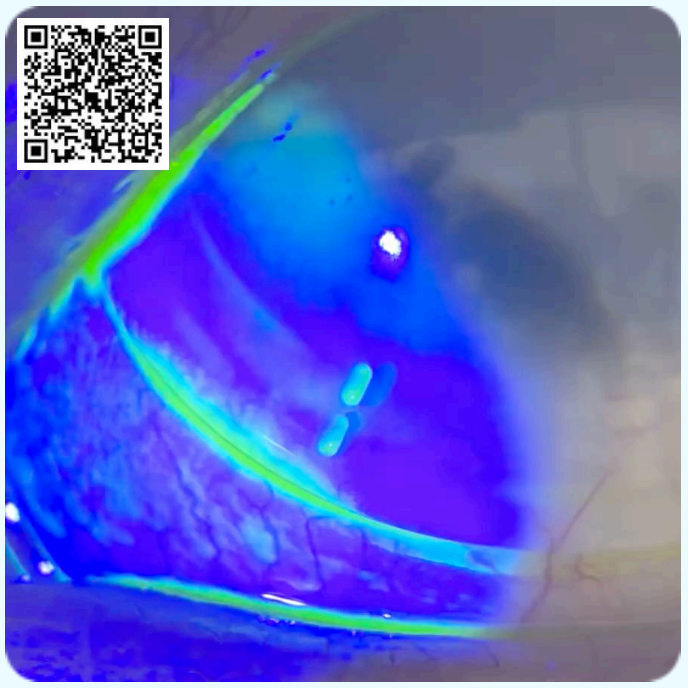
Corneal impingement in this video is specifically at the 3 o'clock position, while the remaining areas are influenced by eyelid pressure. Compared to a standard corneal condition, the cornea is protruded. The increased sag required to accommodate the protruded cornea can result in a false perception of pressure when the patient gazes upward. To thoroughly evaluate, particularly in cases involving a protruded cornea, it is advisable to retract both eyelids in 360° blanching



Leakage at Flat axis 5’ O Clock
(Edge lift)



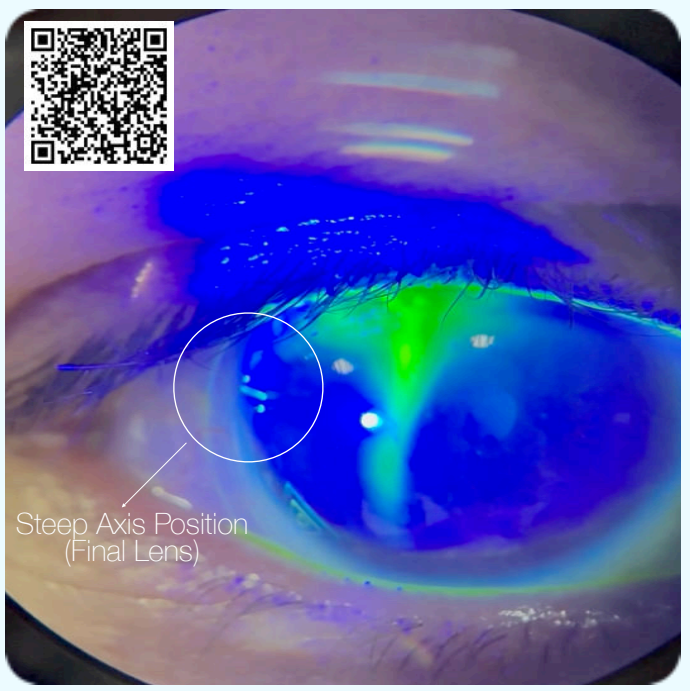
Leakage at Flat axis 7’ O Clock
(Edge lift)



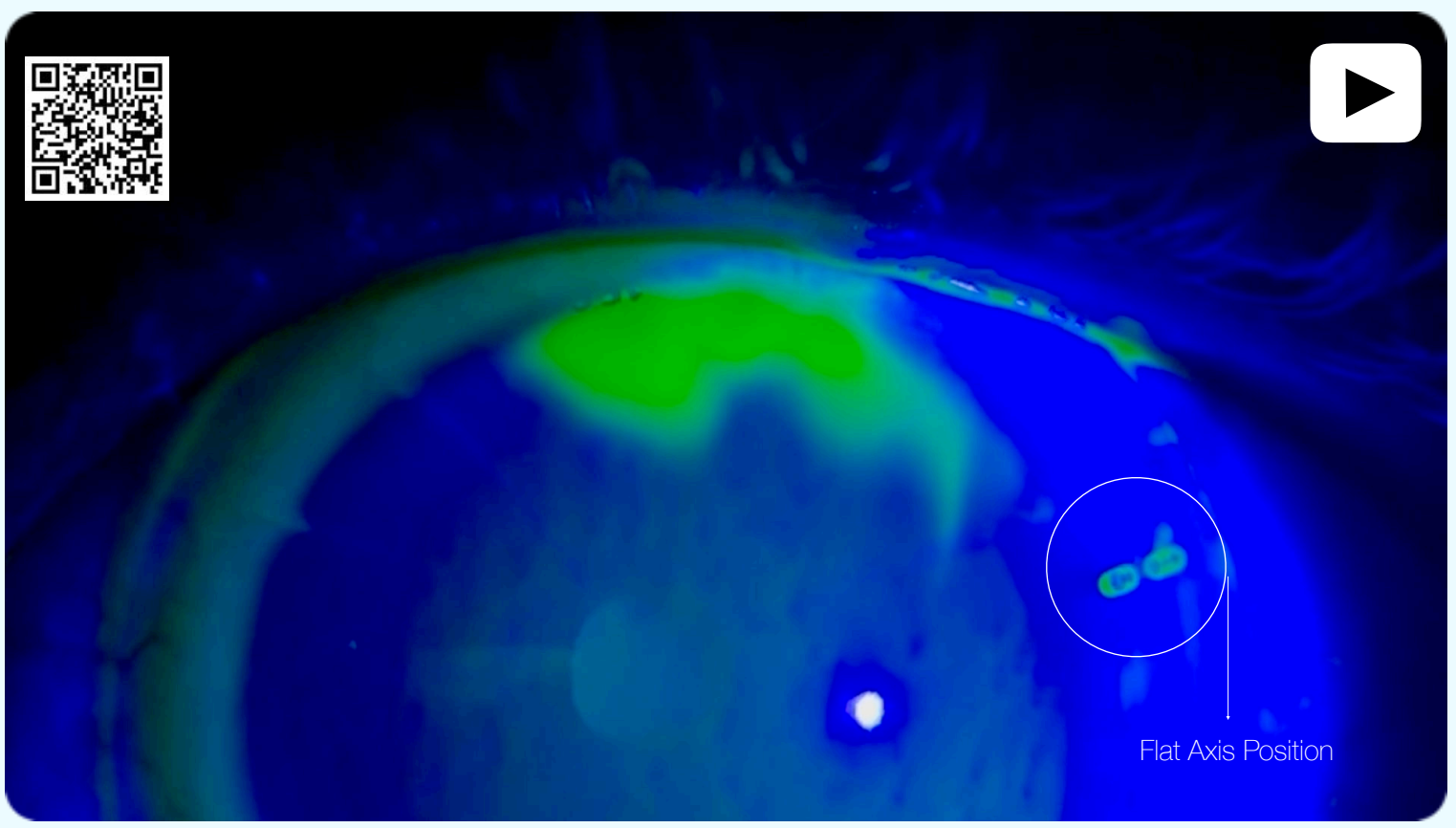
Leakage at Steep axis 11’ O Clock



Leakage at Steep axis 12’ O Clock



Leakage at Steep axis 11’ O Clock



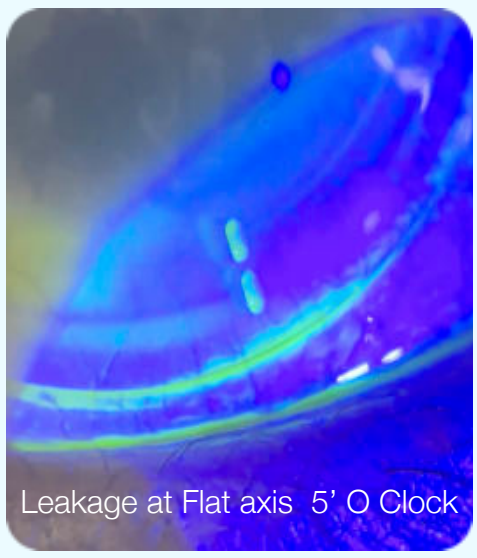
6 Leakage Of Fluo.

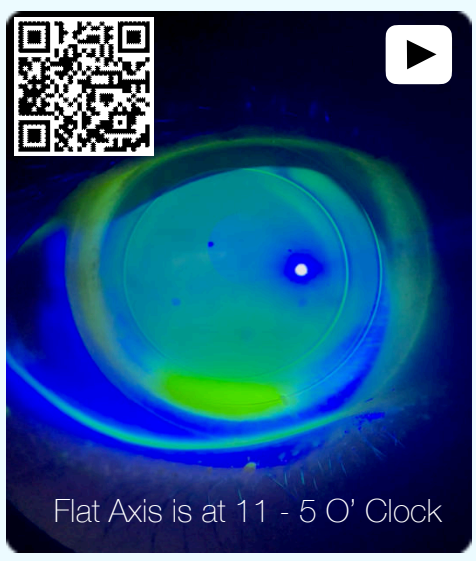
16

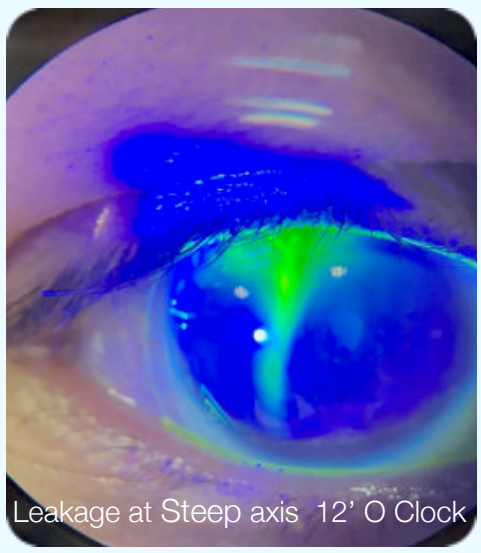
Many scleral lens users struggle with mid-day fogging or fogging after a few hours of lens wear. A very common cause of this issue is floating debris in the reservoir under the lens. Debris formation can be controlled by adjusting the lens haptic or the lens landing on the conjunctiva. Improper lens landing—whether too tight or too loose—is the main reason for this issue. Blanching of blood vessels is a symptom of impingement and compression, which can be assessed through slit-lamp evaluation. In contrast, the leakage of fluorescein dye can indicate a loose lens landing in a specific area.

Procedure: Apply fluorescein to the superior conjunctiva before lens removal (after a minimum of 4-5 hours of lens wear) and observe the entry point of the stain (either at the flat axis or the steep axis). Mark the specific area on the trial assessment sheet to modify the lens alignment with the conjunctiva.

Stain Leakage from the Edges


Leakage at Flat axis 5' O Clock

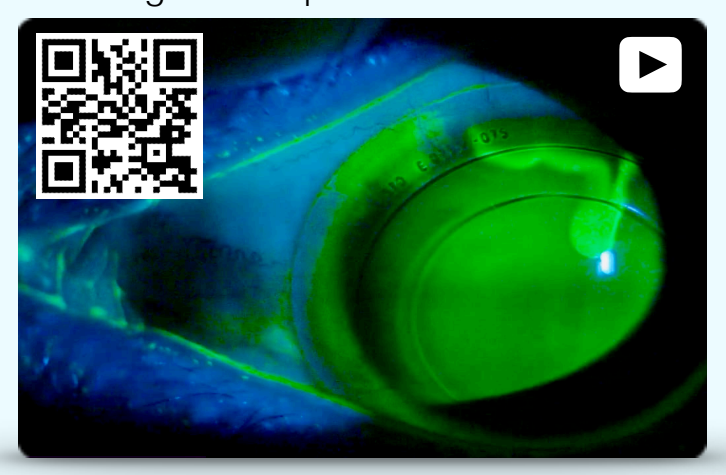

Flat Axis is at 11 - 5 O' Clock


Leakage at Steep axis 12' O Clock

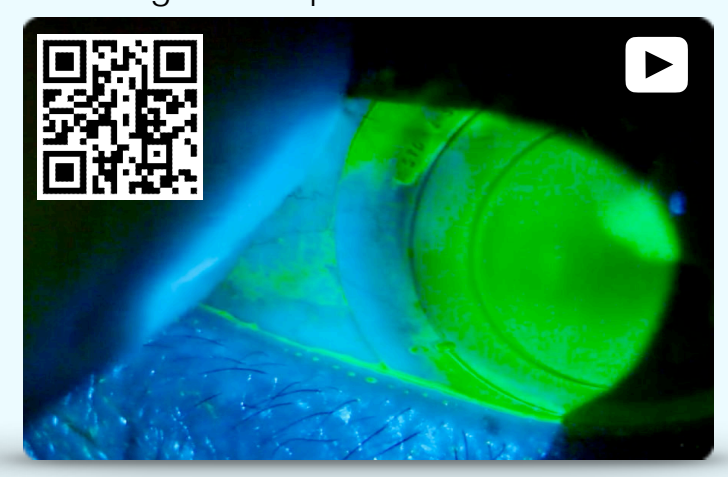
Note Leakage of the stain should be observed under cobalt blue light, which enhances contrast and makes it easier to assess the entry point, as well as the quantity and flow of the leakage.

Leakage of stain generally occurs from the flat axis in about 60% of cases, but it can sometimes be observed from the steep axis in around 30% of cases. In rare instances, the stain may enter from all around the lens haptic.

Leakage at steep axis 12'-10' O Clock



Leakage at steep axis 12'-10' O Clock



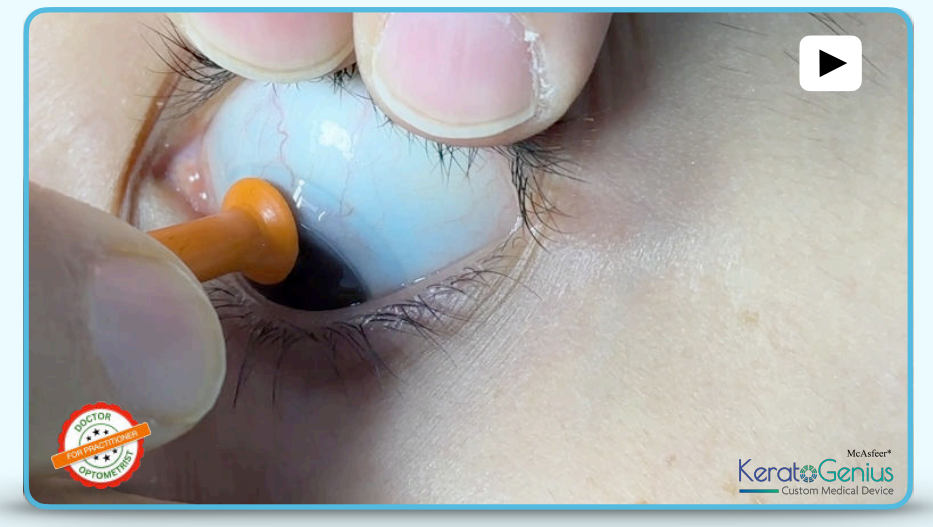
McAsfeer*
KeratoGenius
Custom Medical Device

Lens Removal

17 It is always safe to take the lens out from 12 O' clock when it is removed by the practitioner. Such technique can avoid any accident or trauma to the cornea. Please watch the video attached.

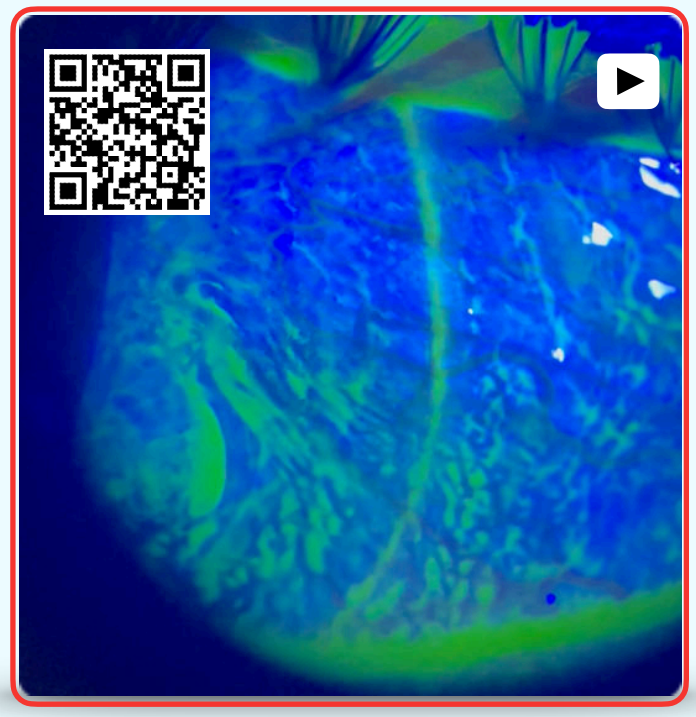


Lens removal with "vertical plunger" by practitioner placing at 12 O' clock position



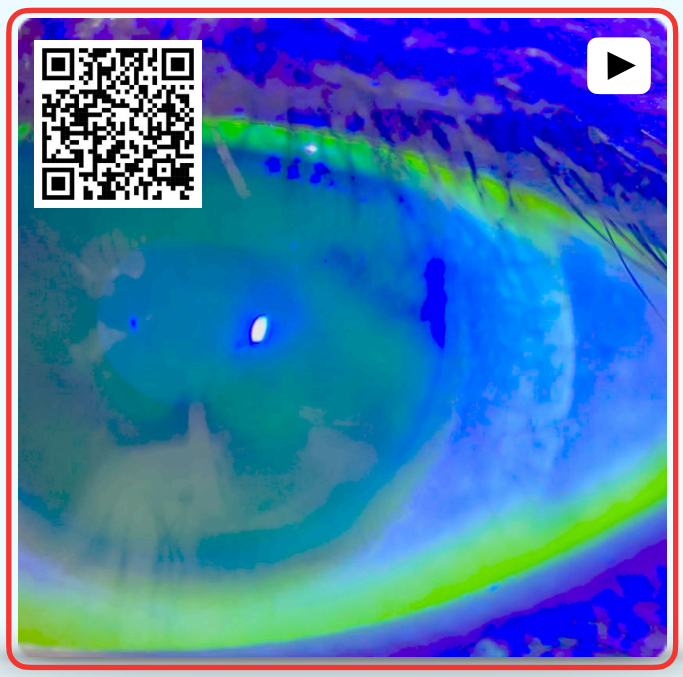
7 Conjunctival Staining

18 Detecting lens impingement can be challenging while the lens is still in place. To get a more accurate view, remove the lens and apply fluorescein stain to the conjunctiva. Any areas of impingement will stand out, glowing brightly under a cobalt blue filter on the slit lamp.



Conjunctival staining after lens removal

19 Conjunctival staining is observed between the 2-4 o'clock positions, while the rest of the sclera shows no impression. Though the lens may appear to fit well during fitting assessment, this localised staining becomes visible with fluorescein dye after lens removal. Identifying these pressure points helps practitioners adjust the lens design for a more accurate and comfortable fit, ensuring optimal scleral alignment and better eye health.



Conjunctival staining after lens removal

Custom Scleral Lens

FITTING PRECAUTIONS

Important Points to Remember During Performing the Trial

★ Gently insert the lens to avoid lens insertion pressure This can cause pain and redness in few hours after the trial and may lead the practitioner in the wrong direction for customization.

★ Fitting should be Evaluated twice. Firstly after 20 minutes of lens insertion & second after minimum 4-6 hours

★ Check over the lens acceptance with fogging method for distance and also check unilateral near vision

Note Unwanted near addition could be due to over / incorrect acceptance for distance. Repeat refraction with fogging.

★ Every trial lens has its unique code imprinted on it's convex surface. Cross check the code with trial lens label, before finalising the final lens parameters (mingling of trial lenses is a very common occurrence).

★ Mention all the findings, trial lens parameters and over the lens acceptance in the Fitting Assessment Sheet to avoid any calculation mistakes.

★ Lens fogging or foggy vision after few hours of lens wear is commonly experienced by scleral lens users. Loose LZ or Lens movement is one of the reason. Reduce the Landing Zone to L3 or as required.

★ Do Not use any solution as tear reservoir which is acidic or alkaline in nature. For example Distilled Water or water for injections, Normal Saline (NS), Ringer Lactate (RL) etc. it may affect the lens performance in extended lens trials and wearing schedule.

★ Do Not use/prescribe Preserved Saline or any solution which contains preservatives as tear reservoir for regular lens usage.

★ Do Not use/prescribe soft or rigid lens Multipurpose Solution tear reservoir for regular lens usage. It may desiccate the corneal surface.

★ It is highly recommended to use and prescribe ***Preservatives Free Buffered Solution of Neutral pH (7.2)*** such as Pro-Saline for McAsfeer scleral lens.

★ Disinfect the trial lens with Pro-Master immediately after the trial on an infected eye or any active eye infection or an eye with discharge, such as viral keratitis, hepatic, HIV, hepatitis and SJS etc.

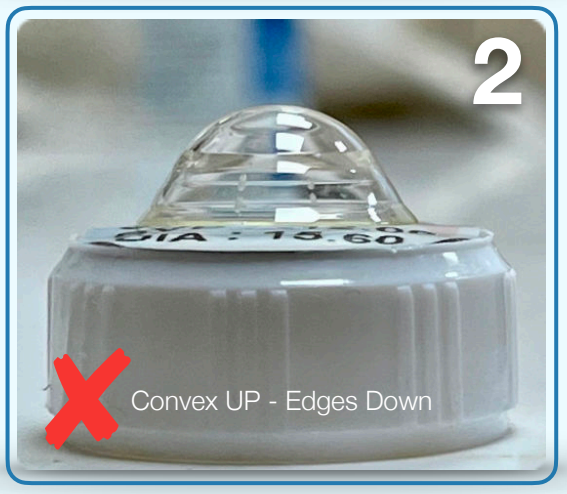
★ Disinfect your trial set at regular interval with Pro-Master (rigid lens cleaning system) to avoid the chances of any eye infection.

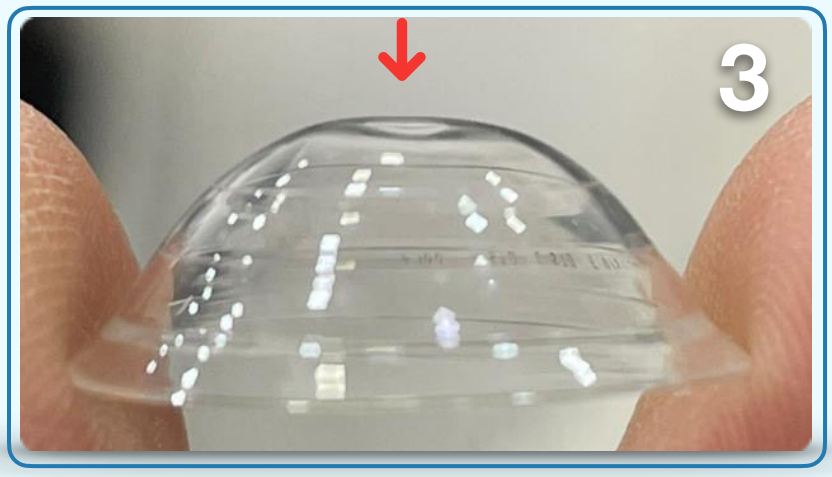
★ Dispensing is the most important aspect of successful lens wear. We need to maintain a healthy fluid reservoir. Failure to do so can result in inflammatory changes. Quality time should be given to the users to educate and they should be made to practice multiple times.

★ While placing the trial lens into the lens case, make sure and be careful that the apex (Convex side) of the lens should go in and settle down into base of the lens case as shown in Fig.1

By mistake, If the lens is placed the other-way round i.e lens apex (convex side up) as shown in fig.2, you may damage the lens by the pressure from the closure of lens case lid as shown in fig.3







Lens Care Solutions

360ml-240ml-120ml-60ml



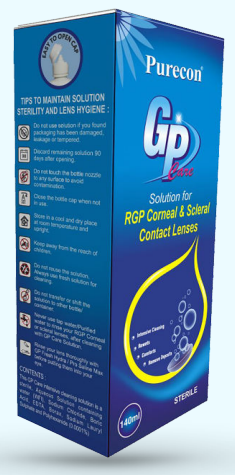
120ml (60+60)



60ml (30+30)



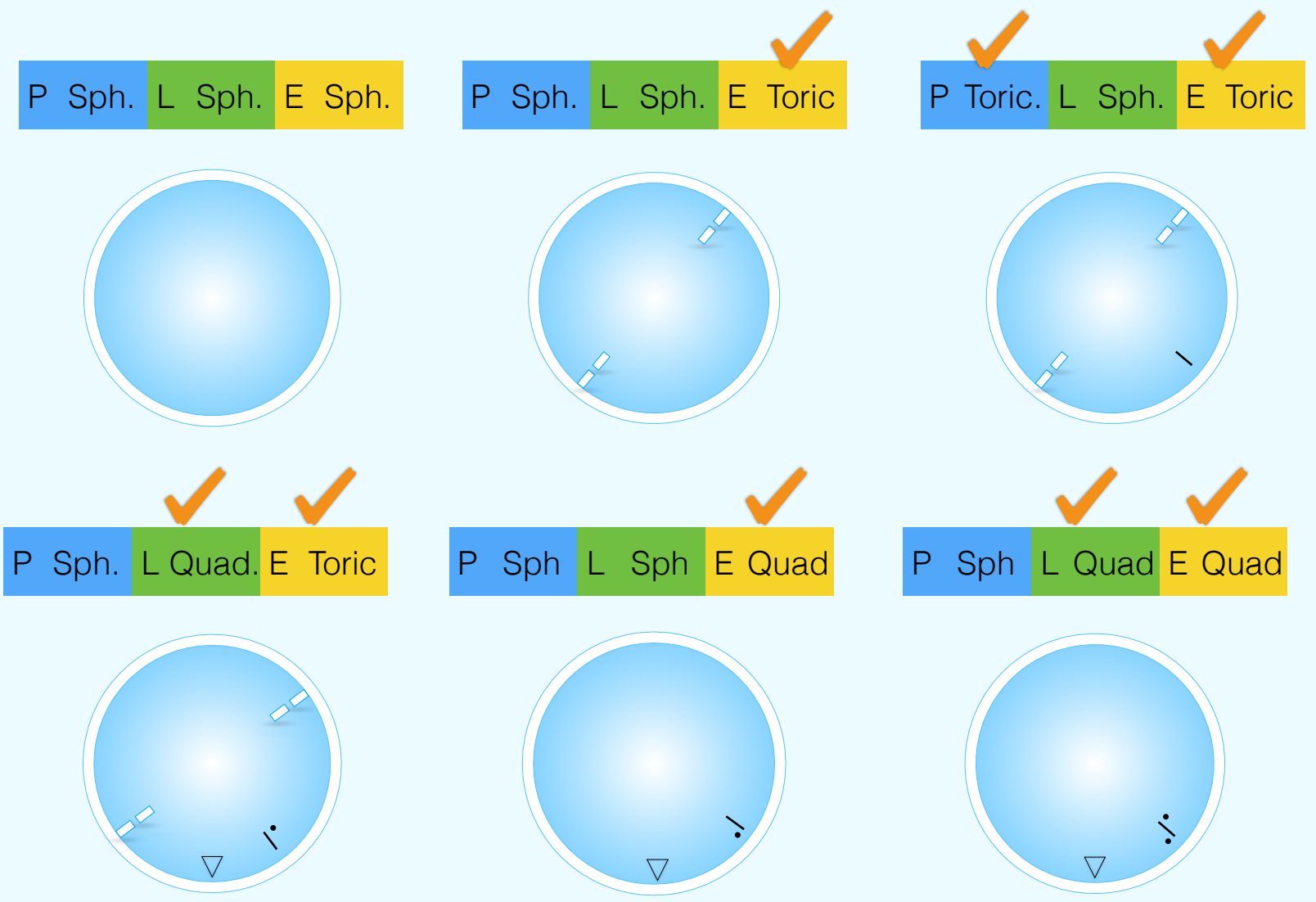
140ml



80ml



Final Lens Markings



Orientation Mark at 270° Of The Eye

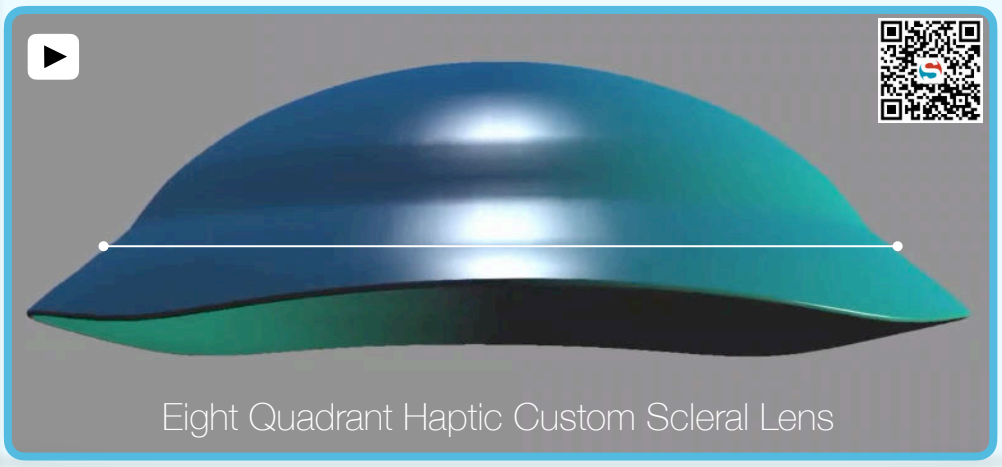


McAsfeer*
KeratoGenius
Custom Medical Device

Lens Geometry / ultra thin design provides higher oxygen to the cornea	The World Thinnest Scleral Lens designed to provide twice the oxygen permeability compared to any available lens in India and around, ensuring superior ocular health and comfort
Highly customised Lens (Can be Customised at 11 different points)	Tailored to address the specific requirements of the patient, including those with keratoconus, ocular surface disorders and post surgical/traumatic irregularities.
Certifications	CE/ISO Approved
Material	Contamac (UK)/ Boston (USA)
Design Options	Spherical, Multifocal, Anterior Toric, Toric on the Periphery, Oblates, Multifocal Oblates, By Qudrants, Controlled Peripheral Recess (Notch)
Plasma Treatment	Available
Central Thickness	200 µm
Diameter [mm]	14.50mm to 16.40mm
Sag Range (µm) - Prolate	3600 to 6600
Central Zone [7.5mm] - Oblate	70 - 230 µm
Mid-Periphery Zone [9.5 mm] - Sph.	± 300 µm
Limbus Zone [12 mm] - 8 Quadrant	± 300 µm
Haptic Zone - 8 Quadrant	± 300 µm
Triangle Mark - Quadrant Mdf.	at 6 O' Clock (of the Eye)
Spherical Power	± 40.00Dsph
Cylindrical Power	-6.00Dcyl
Laser Marking at Mid periphery Zone and Limbal Zone	It helps in identifying and customizing the lens for specific zones.
Toric Haptic - Axis Marking	To assess lens orientation and stabilisation
With years of clinical trials, and real world success, we specialised in advanced scleral lens technology, ensuring optimal vision correction and superior wearing comfort.	

Custom Scleral Lens

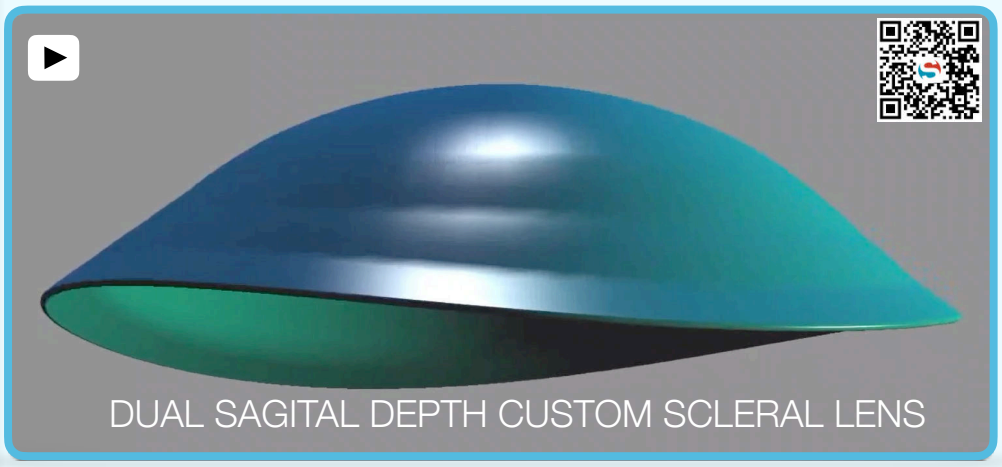
KEY FEATURES & TECHNICAL SPECIFICATION



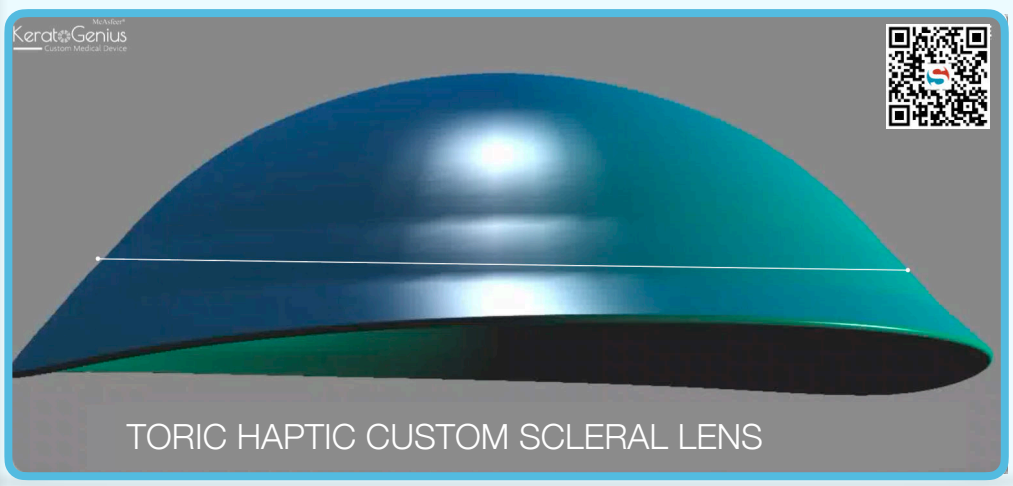
Eight Quadrant Custom Scleral Lenses incorporate sector-specific haptic modifications across all eight meridians, enabling precise alignment with asymmetric scleral topography. This design enhances lens stability, optimizes tear film distribution, and improves physiological compatibility in complex ocular geometries.



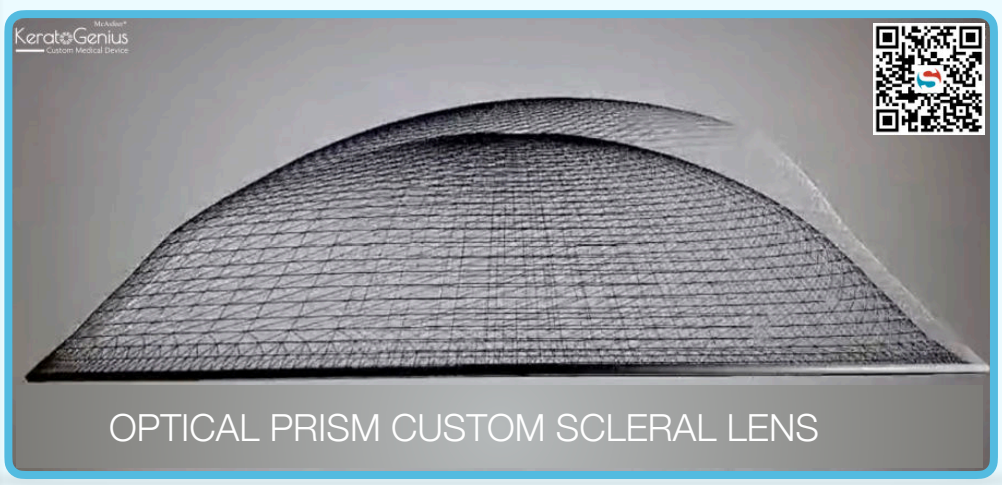
Micro Vault Haptic Scleral Lenses feature localized elevation within the haptic zone to vault over focal conjunctival or scleral irregularities, such as pinguecula or nodules, ensuring optimal lens alignment, comfort, and corneal protection without compromising overall fit



Dual Sag Depth refers to a scleral lens design that incorporates two different sagittal depths within the same lens — one for the central/central-peripheral zone and another for the mid-peripheral/landing zone.This allows the lens to vault the cornea and limbus adequately while optimizing the fit on the sclera, improving comfort and centration.Especially useful for asymmetric scleral shapes or irregular corneas.

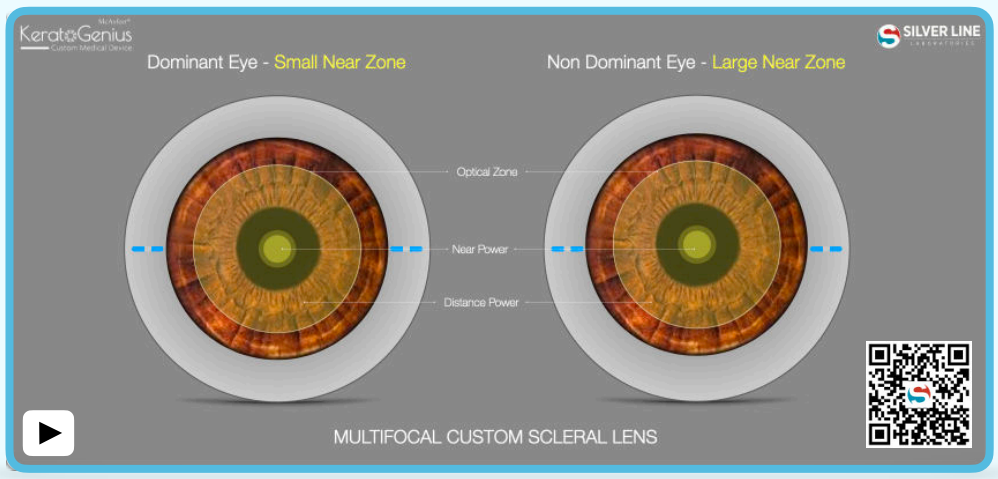


Toric Haptic Custom Scleral Lens is a scleral lens designed with a toric (oval or non-spherical) landing zone to match the natural asymmetry of the sclera.
This design improves lens alignment, stability, and comfort, while minimizing edge lift or localized pressure, especially in eyes with significant scleral toricity.

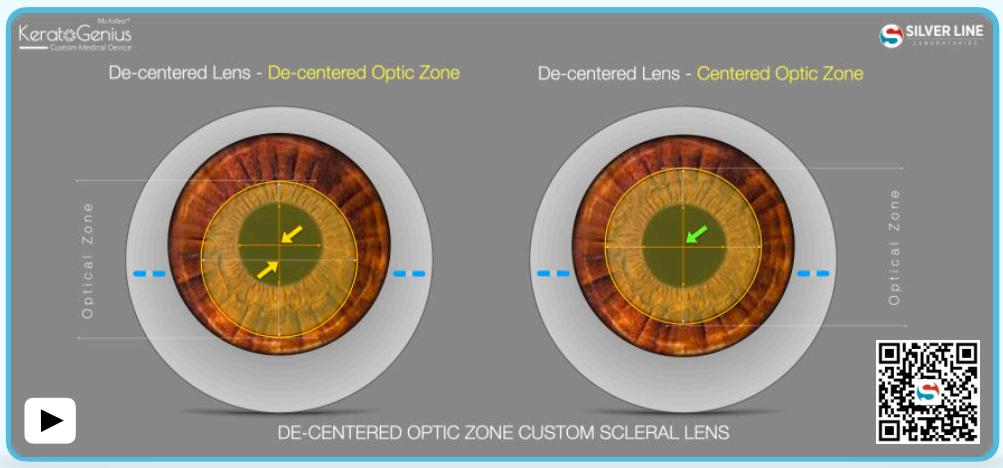


Optical Prism Custom Scleral Lens is A specially designed scleral lens incorporating a controlled prism in its optic zone to compensate for ocular misalignments, such as vertical diplopia or certain binocular vision anomalies. It allows stable prism correction on the eye due to the scleral lens' vaulting and non-rotational fit, ensuring consistent optical alignment and visual comfort

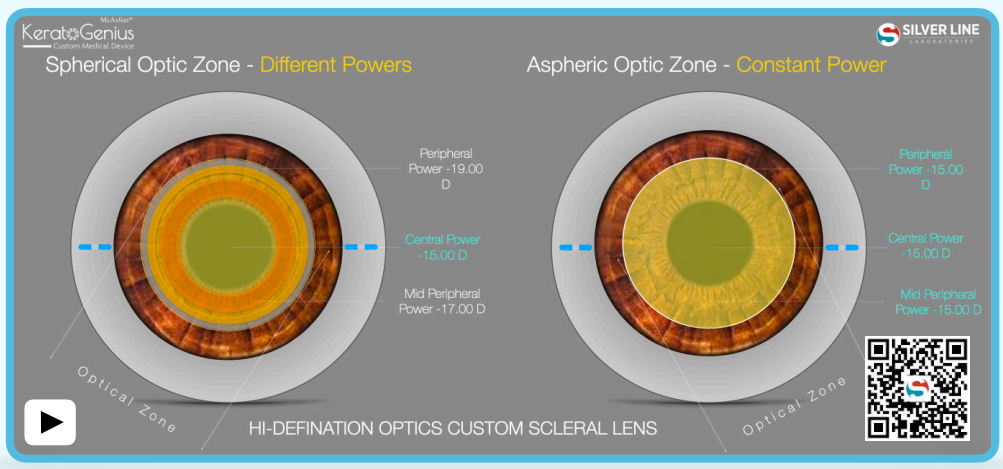
McAsfeer* KeratoGenius Custom Medical Device



Multifocal Custom Scleral Lens is a specially designed scleral lens that incorporates multiple focal zones to provide clear vision at different distances—near, intermediate, and far—while maintaining the comfort and stability of a scleral lens. It is tailored to the patient's corneal shape, prescription, and visual needs, making it ideal for presbyopic patients or those requiring both vision correction and ocular surface protection.



De-Centered Optical Zone Custom Scleral Lens is designed with the optic zone intentionally shifted away from the geometric center of the lens. This adjustment aligns the optical zone with the patient's visual axis in cases of corneal irregularities, decentered pupils, or ectatic conditions, improving visual quality and reducing glare or halos.



Hi-Definition Optic Custom Scleral Lenses Are Specially Engineered With Advanced Optical Designs To Provide Sharper, Clearer Vision By Minimizing Aberrations And Enhancing Contrast Sensitivity, Even In Irregular Corneas Or Complex Prescriptions.

Starter Kit

We prioritise Patient care and convenience. Every Patient receives a complete starter kit, ensuring they have everything needed for proper handling and maintenance.

Each Kit Includes:

Gpfresh Hydra (Multipurpose cleaning & storage solution) 60ml & 120ml- Each one	
Pro-saline MAX (Preservative free saline solution) 2 x 60ml	
Lens Insertion and Removal tool	
Lens Case	
User Guide for Safe Handling	
Exclusive Silver line Storage Bag	

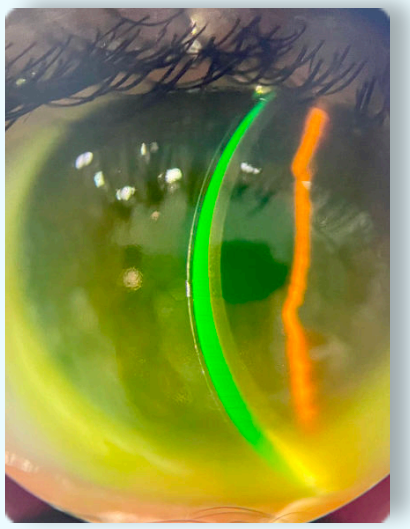
McAsfeer*

KeratoGenius

Custom Medical Device

EARLY

4100	4250	4400	4500	4550
S 4100	S 4250	S 4400	S 4500	S 4550
D 15.80	D 15.80	D 15.80	D 15.80	D 15.80
P +0.50	P +0.50	P 0.00	P -0.50	P -0.50
C -0.00 x 180	C -0.00 x 180	C -0.00 x 180	C -0.00 x 180	C -0.00 x 180
E +50/-125	E +50/-125	E +50/-125	E +50/-125	E +50/-125

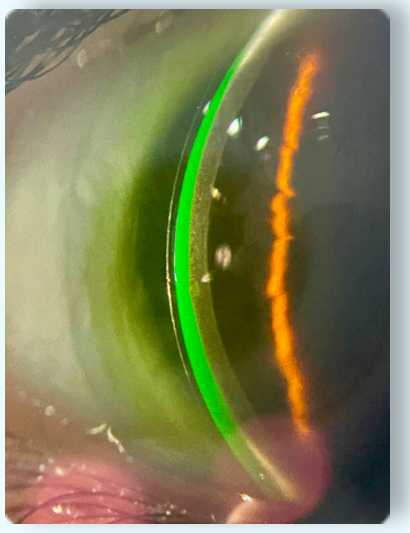


Central Vault

Suggested vault: 250 to 300µm

MODERATE

4600	4650	4700	4800	4900
S 4600	S 4650	S 4700	S 4800	S 4900
D 15.80	D 15.80	D 15.80	D 15.80	D 15.80
P -1.00	P -1.00	P -2.00	P -2.50	P -3.00
C -0.00 x 180	C -0.00 x 180	C -0.00 x 180	C -0.00 x 180	C -0.00 x 180
E +50/-125	E +50/-125	E +50/-125	E +50/-125	E +50/-125

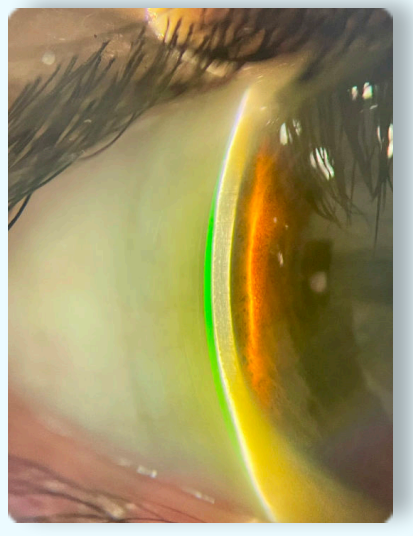


Intermediate Vault

Suggested vault: 150 to 175µm

ADVANCED

5000	5100	5250	5400	5500
S 5000	S 5100	S 5250	S 5400	S 5550
D 15.80	D 15.80	D 15.80	D 15.80	D 15.80
P -4.00	P -5.00	P -6.50	P -8.00	P -9.00
C -0.00 x 180	C -0.00 x 180	C -0.00 x 180	C -0.00 x 180	C -0.00 x 180
E +50/-125	E +50/-125	E +50/-125	E +50/-125	E +50/-125



Peripheral Vault

Suggested vault: 70 to 75µm

SEVERE

5700	5850	6000	6100	6200
S 5700	S 5850	S 6000	S 6100	S 6200
D 15.80	D 15.80	D 15.80	D 15.60	D 15.80
P -9.00	P -10.00	P -11.00	P -12.00	P -13.00
C -0.00 x 180	C -0.00 x 180	C -0.00 x 180	C -0.00 x 180	C -0.00 x 180
E +50/-125	E +50/-125	E +50/-125	E +50/-125	E +50/-125

TRIAL SET

SILVER LINE LABORATORIES

MRD

Type Of Lens

McAsfeer*
KeratoGenius™
Custom Medical Device
Series Of Speciality Lenses

C/o. Dr.

Date:

Age/Sex:

Name:

Ph no:

OD Manifest Refraction

OS Manifest Refraction

U/A
P/H
KH
KV

HVID

U/A
P/H
KH
KV

Final	OD	Zones	OS	Final
OR		C		OR
		M		

	OD		OS
	Debris	Y / N	Debris
	Refraction	Dist/Near	Refraction
	Flat Axis	Position	Flat Axis
	Clearance	C/M/L	Clearance
	Compression	Impingement	Compression
		Leakage of Florescence	Leakage of Florescence
		Conjunctival Staining	Conjunctival Staining

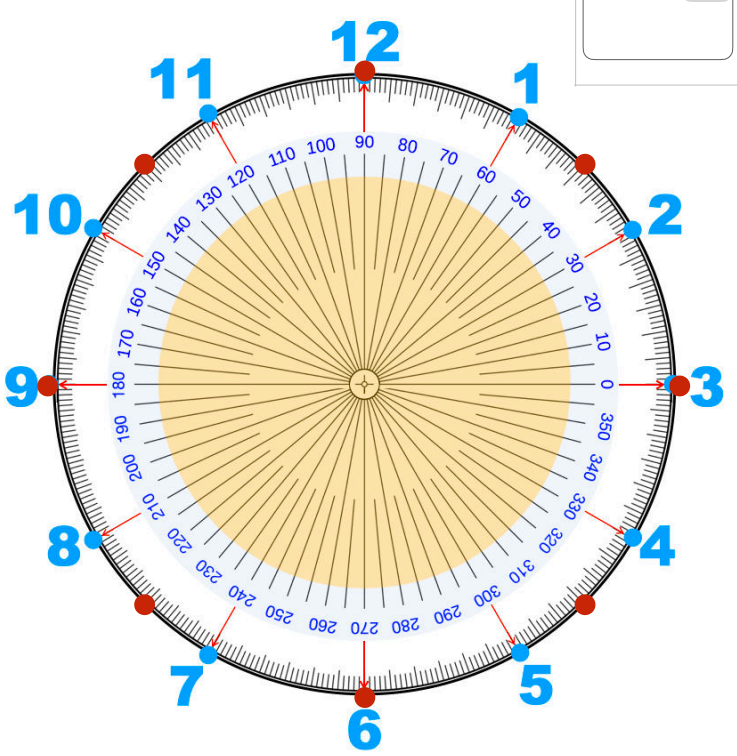
3 O'clock	0°	1.30 O'clock	45°
12 O'clock	90°	10.30 O'clock	135°
9 O'clock	180°	7.30 O'clock	225°
6 O'clock	270°	4.30 O'clock	315°

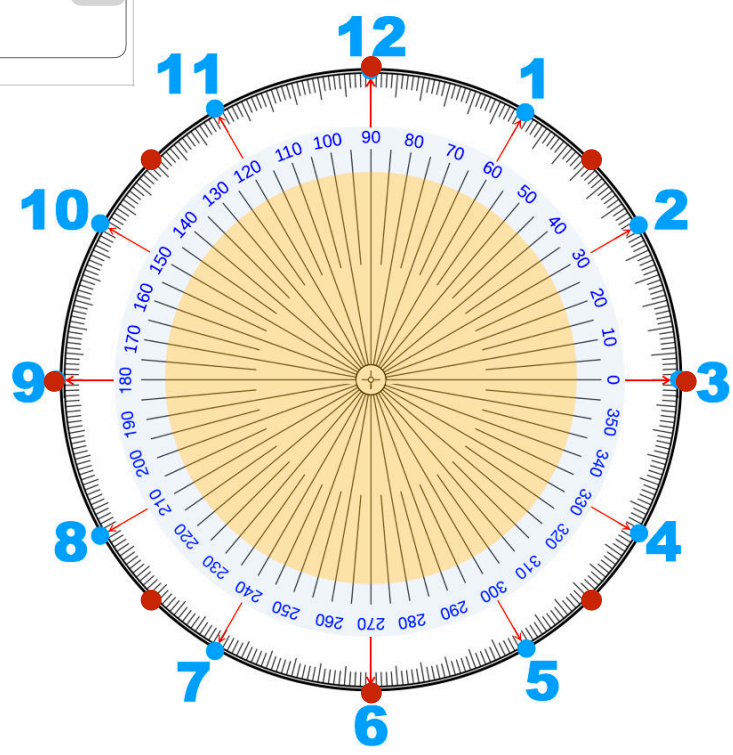
L

E

Flat — Edge Toricity — Steep

In Time | Out Time





Final Contact Lens Parameters		Material Type :
OD		Tint
OS		Tint

C Center | M Mid Periphery | L Limbal | E Edge

Edition 2
August 2025

McAsfeer*

KeratoGenius

Custom Medical Device

Scleral Contact Lenses



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