



The ideal contact lens for

- Children
- Computer Users
- Replacement for Soft Toric
- Soft Lens Dry Eye Problems
- R.P.G. Intolerance

MacroLens<sup>®</sup>  
Practitioner's Fitting Guide

# Corneal-Scleral CONTACT LENSES

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First FDA approved corneal-scleral soft contact lens introduced to the US market in 1969 by Bausch & Lomb.

First FDA approved corneal-scleral rigid gas permeable contact lens was introduced to the US market in 1996 by C&H Contact Lens, Inc.

## Contact Lens Definitions:

### Scleral Contact Lens

A contact lens, where by, the entire pressure exerted upon the lens by the eye lids, is born by the sclera alone.

### Corneal Contact Lens

A contact lens having an over all diameter equal to or less than the corneal diameter, and where by, the entire pressure exerted by the eye lids upon the lens is born by the cornea alone.

### Corneal-Scleral Contact Lens

A contact lens, where by the bearing pressure placed upon the lens by the eye lids is shared by both the cornea and the sclera.

## You have more experience than you know!

The average contact lens practitioner fits over 2,000 corneal-scleral lenses every year!

And much of that skill is transferrable to today's MacroLens.



## Corneal-Scleral COMPARISONS

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### Soft Lenses (a corneal-scleral contact lens)

Was introduced to the market in 1969 and struggled for acceptance for several years. Contact lens fitters wrestled with the changes in technology from corneal contact lens fitting to corneal-scleral fitting as well as the changes from rigid to soft material. The adjustments were made, obstacles were overcome, and now there are over thirty million people wearing soft lenses in the US alone.



**Practitioners have been fitting corneal-scleral lenses for years.**

### MacroLens (a corneal-scleral contact lens)

Was introduced to the market in 1996 and has struggled for acceptance for several years. Contact lens fitters wrestled with the changes in technology from corneal contact lens fitting, to rigid corneal-scleral fitting. C&H, just like the pioneers of soft lenses, have made design changes to enhance the ease of fitting for practitioners. Less fitting time, better quality lenses, and higher DK materials and an overall more marketable product.

# MacroLens Fitting

## THINGS TO REMEMBER

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1. The MacroLens is a corneal-scleral contact lens.
2. You, most likely, have fit thousands of corneal-scleral contact lenses (soft lenses) during your time in practice.
3. Even though the MacroLens is a rigid lens, it is designed to fit like a soft lens, with few exceptions. This manual is about those exceptions.
4. The only similarities between a MacroLens and a corneal contact lens is the contact lens material used in its fabrication.



# Elite Vision O3

## MACROLENS

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Welcome to the world of corneal-scleral gas permeable contact lenses.

### TRANSFER OF KNOWLEDGE

#### Base Curve:

Soft Lens - drapes the central cornea for best alignment...never steep or excessively flat. Usually three(3) base curves are available.

Macrolens - is contoured to align with the central cornea, never steep or excessively flat, for best alignment is fit on flat 'K' to 0.50 D flatter than 'K'. Base curves are available in 0.12 D steps.

#### Peripheral Cornea (secondary Curve):

Soft Lens - slightly vaults at the peripheral cornea to create a tear pump. Some brands have more vaults than others. The flexing of the tear pump allows the soft lens to move slightly.

MacroLens - is contoured to create a slight vault over the peripheral cornea for tear pooling, to aid in delivering oxygen to the cornea under the area of the lens where the lens is at its thickest point. There is also a 0.5 mm fenestration in this area to balance the pressure between the anterior and posterior surfaces, to prevent adhesion. Because the lens material is rigid and does not flex, the lens should not move with the blink.

# EliteVision O3

## MACROLENS



### Sclera (Peripheral Curve):

Soft Lens - fit the scleral area by changing the base curve which will in turn change the sagittal height of the base curve (steeper will tighten the edge, and flatter will loosen the edge).

MacroLens - Using diagnostic lenses, the same principle applies. To loosen the edge at the sclera, flatten the base curve until the edge fits correctly. To tighten the edge, go steeper. Upon completion of the diagnostic fitting, for scleral alignment, order the base curve either on flat 'K' or 0.5 D flatter than flat 'K'. The sagittal height of the diagnostic lens used to fit the sclera is combined with the chosen base curve and computer designed as a custom lens for an exact fit for the eye.

Example:     **44.00 / 45.00**  
                  Base **43.50**  
                          **0.50 D** Flatter than Flat 'K'  
                  Edge **43.00**  
                          Base used with best edge fit.  
                  Order **43.50 Base and 43.00 Edge**

### Tear Film

Soft Lens - Tear film is due to the close alignment of the draping effect. The tear film is only microns thick and if fluorescein were to be used, the tear film would be so thin, most fluorescein would not fluoresce.

MacroLens - The fit of the MacroLens patterns itself so closely to the soft lens that the tear film in most areas is also only microns thick, and most fluorescein will not fluoresce.



# Elite Vision O3

## MACRO LENS

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### DIAGNOSTIC LENS PARAMETERS

#### Base Curve

<b>Diopter</b>	<b>Millimeter</b>	<b>Diameter</b>
46.00	7.34	13.4
45.50	7.42	13.4
45.00	7.50	13.4
44.50	7.58	13.4
44.00	7.67	13.4
43.50	7.76	13.4
43.00	7.85	13.4
42.50	7.94	13.4
42.00	8.04	13.4
41.50	8.13	13.4
41.00	8.23	13.4
40.50	8.33	13.4

Diameters may be varied without changing fit. You may increase the diameter up to 14.0 or decrease it to 13.0.

When to increase diameter:

1. Large palpebral fissure
2. Lens de-centers

When to decrease diameter:

1. Small fissure
2. Small cornea

# EliteVision O3

## TROUBLE SHOOTING

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### Fluorescein - Use it or not

With soft lenses fluorescein is not used at all and fits are readily obtained by observation of objective lens fitting characteristics. This is also the case with the MacroLens. Although, the MacroLens is a rigid lens and will not be harmed by the use of fluorescein, it is up to the individual fitter as to whether or not to use fluorescein when fitting the MacroLens.

Over ninety percent of the fit of a corneal-scleral lens, either soft or MacroLens, is evaluating the edge lift where the fluorescein is not required.

In fitting soft lenses the edge must lay on the sclera with a slight bit of movement. In fitting MacroLens contact lenses, the edge must lay on the sclera with no movement. The only reason the soft lens moves, is because it flexes with each blink. The MacroLens is rigid and does not flex with the blink.

### Diagnostic Scleral Fit Evaluation

Ideal edge fit - The peripheral curve should lay on the sclera demonstrating little to no scleral imprinting and no edge stand off or vertical movement, and no bubbles in the mid-periphery.

Trial lens edge evaluation - When not sure if the edge fit is correct, fit consecutive flatter bases until either the lens begins to move or edge lift is observed, then back up one base curve and order that curve for the edge fit (not the base curve).



# Corneal-Scleral

## TROUBLE SHOOTING

There are three things you need to watch for when fitting a MacroLens. Unlike a soft lens, where air bubbles are rarely seen, the rigid nature of the MacroLens may result in bubbles under the lens. Sclera imprinting can occur in a soft lens when it is dehydrated or surfaced with heavy deposits. Bubbles, sclera imprinting, and central staining can occur when fitting a MacroLens. Below is how to deal with these problems.

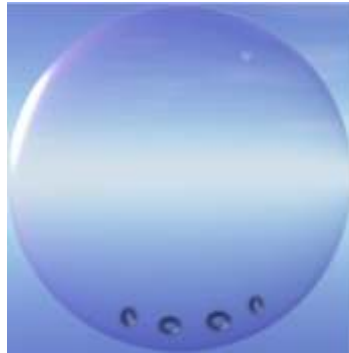
PROBLEM	CAUSE	FIX
Air Bubbles in center base curve	Base curve is too steep	Flatten base curve
Air bubbles in mid-periphery	Mid-periphery too steep	Flatten mid-periphery edge designation (not the central base curve)
Bubbles under edge at the sclera	Mid-periphery too flat	Steepen mid-periphery edge designation (not the central base curve)
Central Staining	Central base curve is too steep	Flatten base curve
	Lens loose, moving and pumping too many tears under the lens	Tighten the edge by steepening the mid-periphery
Sclera imprinting	Lens sagittal height is too great for the eye	Reduce sagittal height by flattening the mid-periphery

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## MACROLENS



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### Trial Lens Edge Evaluation Bubble Assessment

Random, isolated mid-peripheral  
bubbles

**FLATTEN EDGE FIT BY 0.50 D**

Small, isolated arcuate shaped  
bubbles.

**FLATTEN EDGE FIT BY 1.00 D**



Elongated arcuate shaped bubbles.

**FLATTEN EDGE FIT BY 1.50 D**



In rare situations, where elongated  
arcuate shaped bubbles are present,  
the edge may be flattened to the  
point that the lens is loose and

bubble remains in the mid-periphery steepen the secondary  
curve by 0.3 mm and flatten the intermediate by 0.1 mm. This  
can also be done to reduce excessive tear pooling in the mid-  
periphery. This is rare and is caused by a cornea with a much  
steeper than normal periphery.

The opposite of this is the cornea that has a flatter than normal  
periphery. This is usually identified by an imprint of the  
fenestration on the cornea. This fix is just the reverse of the  
previous. Flatten the secondary curve by 0.3 mm and 0.1 mm  
steeper on the intermediate curve.

# MacroLens<sup>®</sup>

The ideal contact lens for

## □ Children

Numerous surveys show that over 70% of eyecare practitioners believe that rigid lenses retard progressive myopia in children. If you have to err...err on the side of caution. Care and comfort is "child's play".

## □ Computer Users

Desktops, laptops, hand helds, or any use of close work tools, slows the blink rate by 50%...a disaster for the soft lens patient. This creates a pseudo dry eye by partially dehydrating the lens, which can also change the optics. The MacroLens will give the same comfort, superior vision, will not dehydrate.

## □ Replacement for Soft Toric

Most practitioners find soft torics to be a compromise between vision and comfort, and desire an alternative. The MacroLens will mask all corneal surface irregularities and delivers the comfort today's contact lens patient expects.

## □ Soft Lens Dry Eye Problems

Soft lenses require a certain quantity of tears in order to keep the balance between comfort and vision. The MacroLens, on the other hand, requires only surface wetting for comfort and vision. The volume of tears required is substantially reduced. Same initial and increased long term comfort.

## □ R.P.G. Intolerance

There are two forms of discomfort. General discomfort to the eye lids, and foreign matter that get between the lens and the eye. resulting in sharp pain. Although lid discomfort can be overcome by simple adaption, the patient can never adapt to the pain of debris trapped by the lens. The all day comfort produced by the MacroLens, by blocking out most particles in the air, is beneficial to the patient. This comfort and vision that the contact lens wearer comes to expect is offered only by the MacroLens contact lens.

For consultation call  
**1-800-527-5060**  
C & H Contact Lens, Inc.