

EE-CONUS FITTING GUIDE

EE-Conus Keratoconus lens from E&E Optics uses FDA approved high oxygen permeability materials together with a complex 5 curves design that make the wearer feel very comfortable and achieve a much better & crispier vision. This simple fitting method recommended below has helped the eye care practitioners in saving their chair time and increases productivity.

CHARACTERISTICS OF EE-CONUS LENS

Lens Diameter:	8.00mm – 10.50mm
Base Curve:	5.00mm – 8.00mm
Power:	0.00D to -20.00D
Special Request:	Specific parameters outside the above-mentioned range can be made and based on the discussion with the Lens Designer.

ADVANTAGES OF EE-CONUS LENS

Easy Fit:	20 pieces of trial lenses with different Base Curve (BC) and Power (Rx) allow a great variety of option for Optometrist to choose.
Prominent Results:	Use the latest computer-generated Lathe-cut technology in production with high precision and fully customized according to prescription.
Delivery on Time:	Different Keratoconus designs are manufactured from different companies in different country and their prices are expensive and slow in delivery. EE-CONUS lens is competitively pricing and delivery by express services.
High Success Rate:	Follow the fitting procedures below will have successful rate up to 95%.
Base in Asia:	Almost all the Keratoconus lenses are manufactured in European Country or USA, it is believed that E&E is the only company in Asia can have the capability to design and manufacture Keratoconus lens independently.

FITTING PROCEDURES

Step 1:

Select a trial lens with a Base Curve (BC) that is steeper 0.2mm than the mean K.

Eg, K = 7.15/7.35, mean K = 7.25, First Choice BC = 7.00mm or 7.10mm

Step 2:

Instill a drop of local anesthetic (if possible) to reduce the adaptation time for the wearer and at the same time, reduce the trial fitting duration.

Step 3:

Use Fluorescein (NaFL) examination to evaluate the fitting, movement and centration of the lens. If centration is good with apical clearance but the edge-lift is slightly tight, it can order the same BC and stated clearly to loosen the peripheral curve (PC) by 1 step. If the edge-lift is slightly loose, it can order the same BC and stated to tighten the PC by 1 step.

Step 4:

Take note on the lens centration and the touch of the cone first before consider the edge-lift. If you can't differentiate the tip of the cone, it means the BC of the lens is too steep. Please choose a flatten BC lens for re-trial.

Step 5:

The trial lens has 4 peripheral curves outside the optic zone and all are under standard design. If the peripheral curves are being loose or tight after the trial fit, please indicate in the order form to tighten or loosen it.

Step 6:

The standard overall diameter (OAD) is 9.0mm and the fitter can order any diameter based on the actual situation. Small diameter lens (8.0 – 8.5) is more stable on steep corneal curvature, while large diameter lens (9.3 – 9.8) will cause the lens settle in upper position.

Step 7:

Remember to check the Rx over lens (ROL) and make sure the lighting in the refraction room is adequate to prevent corneal over constriction or over dilation.

SUGGESTION FOR SUCCESSFULLY FITTING EE-CONUS

1. Proper Procedures of Trial Lens:

Too many trial lens fittings in a short period will cause discomfort, a drop of anesthetic will help to ease the irritation and reduce the tear flow. Too much tear in the eye will cause lens decentering inferiorly and affect the fluorescein examination results. Too much fluorescein will affect the evaluation of the fit; movement and centration. Choose the flatter BC lens if the two trial lenses are having similar fitting pattern

2. Corneal Staining

Corneal staining on the apical centre is not allowed. Reorder a new lens with a steeper curvature for better fit.

3. Determine Overall Lens Diameter (OAD)

The design of EE-CONUS is based on complicated computerized calculation. It consists of 5 different curvatures which are gradually flattened from centre to peripheral. There are over thousands of combinations for central curve with peripheral curve and they are changing according to the different Base Curve (BC), Optical Zone Diameter (OZD), Axial Edge Lift (AEL), Prescription (Rx) and the Overall Diameter (OAD). Therefore, a 9.3mm lens will have a totally different parameter for the peripheral curve as compare to a 9.0mm lens and there is no way to do any modification.

Factors to consider in changing OAD:

- a. Choose a OAD = 9.0mm as the first trial lens.
- b. For moderate astigmatism of Keratoconus, standard EE-CONUS can get a good result. If the horizontal axis is too tight and the vertical axis is too loose, you can order a SMALL diameter to solve the problem.
- c. When 3 and 9 o'clock staining is found, it would be good to reduce the diameter by 0.3mm.
- d. If the decentration is too low, the lens diameter should increase by at least 0.3 mm to allow the eyelid to capture the lens.
- e. If the staining is only found in the superior region, the lens should reduce 0.3mm in OAD or loosen the peripheral curve by ONE step.

- f. If wearer's vision is poor or has double vision after wearing the lens, fitter can try to increase the Optic Zone (OZ) that will reduce the aberration and improve vision. Fitter can also try to prescribe a framed spectacle that can cut down the reflection and glare from the surroundings.
- g. If the peripheral curve is too loose especially the vertical axis, the lens should order a small OAD lens or tighten the peripheral curve. Do remember a small OAD lens has a small Optic Zone (OZ) and it will cause blur vision.

4. Lens Centration

EE-CONUS lens will centralize automatically on the corneal apex. If the lens decenter downwards, it should increase the OAD, or order a slightly flatter BC lens, or loosen the peripheral curve. If it decenter upwards, the lens should reduce the OAD, steepen the BC or tighten the peripheral curve. Try to push the lower eyelid upward, to centralize the lens first, to avoid gravity effect act on the fitting pattern before doing fluorescein evaluation.

5. Trouble Shooting Procedures

Use the HVID to choose the first trial lens and usually is a 9.00mm lens. Observe the centration and the fitting pattern first before analyse the tightness of peripheral curve. If the vision is not satisfactory, check the apical clearance or high uncorrected residue cylinder power, then change to a small diameter lens likes 8.5mm or 8.7mm

6. Fluorescein Evaluation

Fluorescein evaluation is very important in fitting EE-CONUS lens. Try to get the best central fitting lens with minimum apical touch and record the Base Curve (BC) first, and then, find the best Peripheral Curve (PC) that is parallel to the corneal periphery contour.

If BC = 6.90 trial lens have the minimum apical touch, but the BC = 7.10 trial lens show a better peripheral fit, then the order of the EE-CONUS lens should be BC = 6.90 and PC follow 7.10

7. Peripheral Curve System

All Keratoconus lenses have some common features: A steep BC with a few flat PCs, but the design is different in term of the combination of the peripheral curve system.

EE-CONUS is using a complicated computerized formula to calculate the four peripheral curves with the width of 0.3-0.4mm. Each junction of the adjacent curvature will have another 0.25mm width curve to superimpose on top of them to enhance the flow of the tear underneath the lens.

EE-CONUS lenses are manufactured by the fourth generation computerized Lathe Cut technology that can reassure the accuracy and reliability.

Because of the complicated peripheral curve system, the cutting line on individual curve may be visible as concentric rings under the light or magnifying glass and they are not manufacturing defects.

Most of the standard EE-CONUS lens will have a success rate up to 90% and any modification on finished lens is not allowed. Most common alternation is done on the peripheral curve that needs to loosen one or two steps.

8. Seg Height Modification

Change the peripheral curve will affect the seg height of the lens and its variation is in the range of 0.05mm for most of the alteration.

EE-CONUS lens will keep the seg height consistent with the BC unless when the fitter indicated in the order form, when problem is not resolved under normal situation.

9. Residual Astigmatism

Most of the Keratoconus patient will have corneal astigmatism. EE-CONUS will be able to correct most of this regular or irregular astigmatism.

If there is residue astigmatism in the over-refraction, it may be the uncorrectable irregular astigmatism or lenticular cylinder.

If the residue cylindrical power is lower than 0.75DC, there will not too much effect on the vision. However, if the cyl is more than 1.00DC, fitter can add -0.25DS or -0.50DS to compensate the vision or else order a new piece of toric EE-CONUS lens.

10. Fenestration

If dimple veiling is appearing under the lens, fitter can loosen the peripheral curve or change to a flatter BC or reduce the OAD for the EE-CONUS lens.

If the small air bubbles persistently remained and caused indent on the corneal surface, the vision will be affected. Fenestrate a 0.3mm hole at the mid-peripheral zone of the EE-CONUS can be considered to reduce the pressure and release the air bubbles.

EE-CONUS TRIAL LENS DESIGN

(ALL measurements are in mm)

OAD/ OZD
9.6 = 7.0
9.5 = 6.9
9.4 = 6.8
9.3 = 6.7
9.2 = 6.6
9.1 = 6.5
9.0 = 6.4
8.9 = 6.3
8.8 = 6.2
8.7 = 6.2
8.6 = 6.0
8.5 = 5.9
8.4 = 5.8
8.3 = 5.7
8.2 = 5.6
8.1 = 5.5
8.0 = 5.4

BC	Rx (D)	CT
5.60	-14.50	12
5.70	-14.00	12
5.80	-13.50	12
5.90	-13.00	13
6.00	-12.50	13
6.10	-12.00	13
6.20	-11.50	13
6.30	-11.00	14
6.40	-10.50	14
6.50	-10.00	14
6.60	-9.50	14
6.70	-9.00	14
6.80	-8.50	15
6.90	-8.00	15
7.00	-7.50	15
7.10	-7.00	15
7.20	-6.50	15
7.30	-6.00	16
7.40	-5.50	16
7.50	-5.00	16

Legend:

OAD = Overall Diameter; OZD = Optic Zone Diameter; BC = Base Curve; Rx = Power; CT = central Thickness

The EE-CONUS Keratoconus lens has a steep central portion with four progressively flatter peripheral curves. Very mild apical touch centrally with paracentral clearance is recommended with this lens. If apical clearance is present, flatten the base curve progressively until minimal apical touch is present. Keratoconus fitting requires trial-and-error fitting, common sense, patience and a local manufacturer support.

Base on the cone classification of nipple, oval and globus, the lens is available in different optical zone diameter and different overall diameter: nipple cone 5.5mm OZD/8.1mm OAD, oval cone 6.0/8.6mm; and globus cone 6.5/9.1mm. The ideal fit will demonstrate a central light touch of approximately 2mm and an even alignment in the periphery. Central bubbles indicate a steep lens. A flat lens would be indicated by an area of central touch greater than 4mm.

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