

1. Estimate cone severity by observation. Early, moderate or advanced.

ALK No	Stage	Bcr	Td
0	Early	8.00	9.60
1	Early	7.70	9.50
2	Early	7.35	9.50
3	Moderate	7.09	9.50
4	Moderate	6.74	9.40
5	Moderate	6.41	9.30
6	Advanced	6.11	9.20
7	Advanced	5.83	9.10
8	Advanced	5.55	9.00

2. Select suitable trial lens from standard set no. 0 – 8 according to the table above (e.g. lens no 5).

3. Assess fitting with fluorescein on anaesthetised eye as follows:

- Assess central fit (Zone 1 and Zone 2)
- If clearance is excessive, select lower lens number (e.g. lens no 4)
- If clearance is insufficient, select higher lens number (e.g. lens no 6)
- Once the central fit is optimal, assess the peripheral fit (Alignment Zone and Edge)
- If peripheral fit gives insufficient clearance, select lens with the same number and increased peripheral clearance designated with a plus sign (e.g. 5+)

4. Allow best fitting lens to settle for 20-40 minutes, over-refract.

5. Reassess fitting and establish fine tuning adjustments.

6. Order the best fitting lens, over-refraction or BVP of the desired lens and fine tune as follows:

- Zone 1      If more or less is clearance needed either specify the required Bcr (see above table) or specify a half way step between lens numbers (e.g. lens no 4-5)
- Zone 2      If a narrower or wider annulus is needed specify the desired change in millimetres (e.g. 0.1 mm smaller zone 2)
- Edge        If more or less edge clearance is required, specify the desired AEL change in millimetres (e.g. 0.05 mm more AEL)
- TD         If a slightly larger or smaller lens is required, specify the desired TD change in millimetres (e.g. 0.10 mm reduction in TD)

Alternatively, if the fine tuning of the fitting is more intuitive then contact David Kates, CLPL's Technical Services Manager, who will be able to design the optimal lens given the intuitive fitting impression.



Please note that after modifying one or more of the above parameters, the laboratory will compensate other critical parameters to retain optimal fitting characteristics and supply a code which allows exact reproduction of the lens ordered.

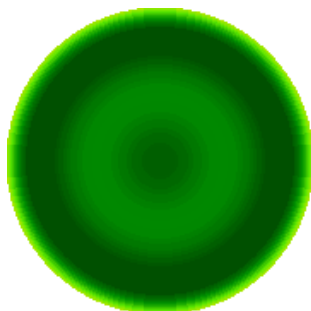
### General points

Physiologically, ideal central fit is when the cone is vaulted (no contact between lens and cone). This however has poorer visual outcome compared to cornea/lens contact. So aim at a 'feather' (light) cone bearing if vaulting produces less than acceptable visual outcome.

Peripheral fit: an area of contact with the cornea in the mid-periphery (a full annulus of contact is not necessary) followed by an optimal edge clearance (as in a standard lens fit), excessive edge clearance is undesirable as it may compromise comfort.

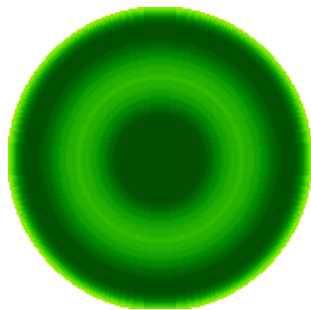
# ALK FITTING PROCEDURES - FITTING EXAMPLES

The objective is to achieve an optimal keratoconus fit, which should show a light cone touch/alignment surrounded by an even pool of tears. The clearance area around the cone transforms into an alignment fit in the mid periphery and terminates with an even edge clearance. Centration (unless the cone is substantially displaced off centre) and movement should be as a standard gas permeable lens fitting. A good, clinically acceptable fit may not fulfil all of the ideal fit criteria.



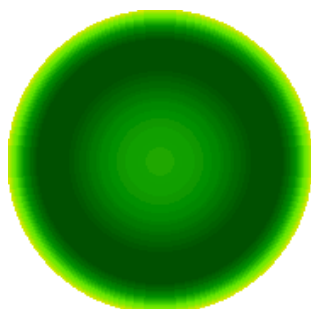
## 1. Ideal fit:

Centrally: Light cone touch/alignment.  
 Circum-cone: Pooling of tears.  
 Mid periphery: Alignment.  
 Edge: Optimal clearance.  
**Action:** *Allow to settle, recheck fit, then over-refract.*



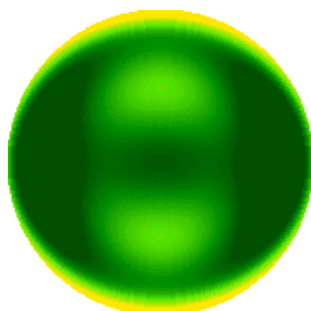
## 2. Flat fit:

Centrally: Heavy cone bearing.  
 Circum-cone: Pooling of tears, may extend to mid periphery.  
 Mid periphery: Areas of alignment and pooling, due to lens rocking.  
 Edge: Excessive, may stand off due to lens rocking.  
**Action:** *Try next or subsequent to next higher number (Go steeper).*



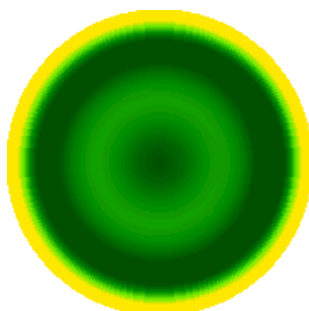
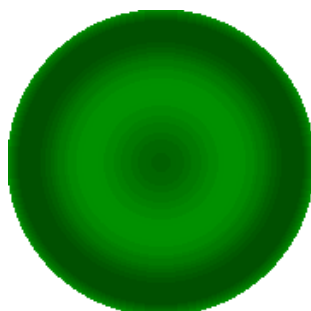
## 3. Steep fit:

Centrally: Cone and circum-cone clearance, may trap an air bubble.  
 Mid periphery: Alignment / bearing.  
 Edge: May be minimal or acceptable.  
**Action:** *If only slightly steep in the centre, allow settling as may settle back and give an optimal 'feather' touch cone. If remains too steep try a lower number lens.*



## 4. Peripheral astigmatic fit:

Centrally: Ideal fit achieved (Actually this is a steep fit).  
 Mid periphery: May be ideal or flat in one meridian and steep in another.  
 Edge: Shows minimal or no clearance in one meridian, and excessive clearance in the other.  
**Action:** *If a flatter lens was unacceptable, try an increased edge lens. Or use the same number, smaller lens.*



## 5. Edge fit:

Centrally: Ideal fit achieved.  
 Mid periphery: Alignment.  
 Edge: Too little or too much edge clearance.  
**Action:** *If too little, try same number, increased clearance lens. If too much, order reduced edge.*