Paragon CRT Dual Axis®
REFERENCE GUIDE

Fit Faster and Reduce Chair Time
I. Introduction to Paragon CRT Dual Axis®

II. When to Change the LZA?

III. Using the 16-lens trial set of CRT Dual Axis® Lenses

IV. Observations in Troubleshooting
I. Introduction to Paragon CRT Dual Axis®

Most eyes with astigmatism manifest a significant difference in corneal toricity and elevation difference between the flat and steep meridian. However, even eyes that only have a spherical refractive error may display corneal toricity and corneal elevation difference. Thus, it is important to evaluate the overall amount of corneal astigmatism between the flat and steep K readings. It is also important to evaluate the overall fit of the lens to ensure there is complete alignment of the lens.

The Paragon CRT lens design has a return zone depth (RZD) and landing zone angle (LZA) that helps control the centration of the lens. When there is corneal toricity, also represented by elevation difference between the flat and steep meridian, a spherical Paragon CRT lens design will not align the cornea completely. This creates a weakened compression force in the steep meridian and results in poor centration, uneven central corneal molding, and under-treatment.

The overall magnitude and the extent of corneal toricity should be assessed in determining the sagittal depth difference in the two meridians of CRT lenses to achieve ideal centration and even weight bearing in the periphery. In the Paragon CRT Dual Axis lens design, the return zone depth (RZD) and landing zone angle (LZA) can be varied to compensate for corneal toricity and overall elevation difference of the eye. The RZD is varied in 25 micron increments, up to 150 micron
depth difference in the steeper meridian to compensate for the corneal
toricity and elevation difference of the cornea. The LZA can also be
varied in 1 degree increment, up to 2 degree difference to compensate
for the peripheral corneal slope different and/or limbal toricity.

The flat meridian RZD and LZA are based on the flat K reading from
the initial lens selector guide. The steep meridian RZD is based on the
magnitude of the corneal toricity and/or elevation. The secondary LZA
can be adjusted based on the fluorescein pattern to have uniform
alignment in the edge lift on the peripheral cornea.

A guide to start - may still need to adjust/increase RZD
difference based on NaFl pattern of lens and topography*

<table>
<thead>
<tr>
<th>Depth (D)</th>
<th>RZD Adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.75 D to 1.50 D</td>
<td>Add 50 micron difference to RZD from suggested flat meridian</td>
</tr>
<tr>
<td>&gt; 1.50 D</td>
<td>Add 75 micron difference to RZD from suggested flat meridian</td>
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</tbody>
</table>

When fitting a Paragon CRT Dual Axis design, the BC remains constant,
unless there is a separate need to correct the power of the BC, such as
the refraction of the lens (ROL) falling outside of desirable parameters.

Example: Spherical CRT lens parameter

BC 8.7  RZD 550  LZA -33

The possible parameter alternatives for Paragon CRT Dual Axis®
products are:

1. The RZD could have a second value and
the LZA would remain a single parameter
(8.7/550/600/-33)

2. The LZA could have a second value and
the RZD remains a single parameter
(8.7/550/-33/-34)

3. The RZD and LZA could both
have second values
(8.7/550 / 600/-33/-34)

**Laser Markings on Lens**

Paragon CRT® spherical design
has a single laser mark while
the Paragon CRT Dual Axis®
design has two markings 90°
each from other. The second
laser mark shows the RZD
and/or the LZA difference in
the steep meridian.

**II. When to Change the LZA?**

In most cases, the suggested single LZA will show adequate edge lift
360° due to the added thickness to the edge in the steep meridian.
When the observation of adequate edge lift is seen in the flat meridian
but a significant difference in the edge clearance is seen in the steep
meridian, such as a cornea that displays limbus-to-limbus astigmatism,
the Landing Zone Angle should be varied in the steep meridian to
provide a more uniform circumferential edge clearance. A difference
of one degree in the steep meridian will be clinically significant and
a difference of two degrees may be needed when there is a marked
difference in the edge clearance observed in the fluorescein pattern.

**III. Using the 16-lens trial set of CRT Dual Axis®
lenses, follow these procedures:**

1. After selecting the suggested lens from the Paragon CRT® Initial Lens
Selector (example: 8.5/550/-33), add either 50mm or 75mm to the
secondary RZD to choose a Paragon CRT Dual Axis® lens having the
nearest BC, but same RZD, and LZA. The RZD for the deeper meridian
will be 50 microns greater (8.5/550/600/-33). If you choose to use the
electronic version of the lens selector, it will automatically indicate if
you should select a spherical Paragon CRT® lens or a lens with a RZD differential for Paragon CRT Dual Axis®. See chart 1 under section I.

2. Observe the lens on eye for the criteria for an ideal fit:
   a. A 3 to 4 mm treatment zone. The treatment zone may appear oval due to the extra depth of the lens in the RZDz.
   b. Lens centered within 0.5 mm of pupil center
   c. Circumferential bearing under the landing zone (complete/uniform “bulls eye” pattern)
   d. Edge clearance between 1-2 mm

3. If the edge clearance is significantly different 90 degrees apart, consider 2 LZA parameters (ex. 33 & 34 or 33 & 35) differences. For every 1° LZA increase, the lens edge clearance decreases by 0.2mm in the respective meridian (8.90/550/600/-33 & -34).

4. Determine refraction over lens (ROL) for the appropriate BC and order the final Paragon CRT Dual Axis® lens with either 2 RZDs and/or LZAs.

**IV. Observations in Troubleshooting**

The following are the indicators for a Paragon CRT Dual Axis® design:

- **Corneal Astigmatism ≥ 0.75D**
- **Difference in peripheral alignment 90 degrees apart with a best-fit spherical Paragon CRT® diagnostic lens.**
- **NaFl leaking through RZD so that a complete bull’s eye pattern is not observed.**

- Caroline P, Andre M. Not All Astigmatism is Created Equal. CL Spectrum 2009 Apr; 16(4):56
For additional information on Paragon CRT Dual Axis®, please call your Authorized CRT Laboratory Consultant, or Paragon Consultation at: 800-528-8279 option 2.