

CorneaLens[®]

Uniquely Created For Your Eyes



How to design a WAVE CorneaLens®

BEFORE YOU START

- Measure the patient's subjective refraction, corneal diameter, and pupil size carefully.
- Capture repeatable and good quality topography maps and check for coverage. (at least 65%)

Step 1 – Import the Corneal Topography

- Once you are satisfied with the topography/tomography map quality, import it into WAVE.

Step 2 – Data Input

- Enter the refraction and check the HVID. Click on **Next**.
- Choose **CorneaLens®**.
 - Multiple micro-aspheric curves create a lens design that can be further modified for regular and different types of irregular corneas.
 - Depending on the patient's corneal diameter, and your fitting philosophy, you may regularly change the **Lens Diameter** (OAD) from default.
 - When using FForm or GSYM lens designs, a larger lens diameter is recommended to support the correct orientation of the lens. This is customizable in Lens Design Preferences Settings. In the preference setting you can set a default diameter by making lens diameter 0.8 mm to 1.5 mm smaller than the visible iris diameter.
- Click on **Start Design**.



You can review the design along each of the 8 semi-meridians. As you click on each meridian, pay attention to the **Tear Film Graph** and the **Simulated Fluorescein map**.

A well-fitting lens will have a smooth lens back surface profile line that reasonably mirrors the cornea line. The most important area of the profile line is the area near the periphery known as the alignment zone (between blue and pink points). Here, we want to avoid considerable down turning or too much of an upturn. This is important for lens stability and comfort.


A GP lens with a minimal edge lift is very uncomfortable and can easily adhere to the eye surface due to lack of tear film exchange.

Central thickness of 0.2 or more should be adequate to reduce lens flexure in corneal lenses. Increasing the central thickness reduces the likelihood of lens flexure, but also reduces oxygen transmission. Edge thickness of 0.16 or more should be adequate to reduce the chance of chipping and cracking around the edge.

Step 3 – Review and Finalize the Design

- Check simulated Fluorescein map and tear layer 360° to confirm design is suitable for the patient.
- On the right menu, under the Lens Type and Material, check the material, color, or choose add-ons if desired. Review the Lens Summary.

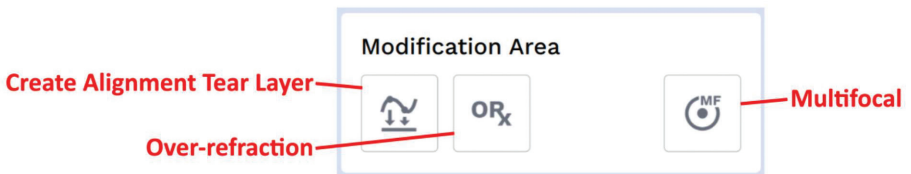
Step 4 – Order

- Proceed to **Order** the lens or save it until a later time. You can track your orders online. To access the WAVE Internet Order Status System (IOSS), you can easily click on the Help button  and access the WAVE resources page.

How to modify a WAVE CorneaLens®

Depending on the selected geometry (Rotationally symmetric/RSym, Geometrically symmetric/GSym, or FreeForm/FForm), the designer has different controls of the eight meridians.

- To increase or decrease the tear thickness and zone diameter click on the control ball itself to show arrows that will adjust the tear layer in the direction desired. As you do that, the amount of change is shown in the upper center area of the Tear Film Graph. You may also drag the control points right or left to change the tear or lens profile. This type of modification is for experienced users only.
- As the parameters are modified, WAVE Lens Designer redesigns the lens. In addition, the modification tools in the Modification Area can be used:



Modifying the Lens Power (ORx)

After ordering the WAVE lens for a patient, you may need to perform an over-refraction to finetune the lens power. To enter the over-refraction, click on ORx button in the Modification Area. In the dialogue box you can enter the Over-Refraction data.

If you notice that the lens has rotated, you can enter the rotation angle here. The grayed-out fields show the expected residual prescription (internal astigmatisms).

The 'Enter Over-Refraction' dialog box contains the following elements:

- Expected Residual Prescription:** Three input fields with values +0.50, -1.25, and 088.
- Sphere (D):** Input field with value 0.00.
- Cylinder (D):** Input field with value 0.00.
- Axis (°):** Input field with value 180.
- Rotation (°):** Input field with value 0.
- Visual Feedback:** A circular diagram with a blue gradient and a white center, showing rotation angles 90, 180, 0, and 270.
- Buttons:** 'Cancel' and 'Apply' buttons at the bottom.

Create Alignment Tear Layer

By selecting Create Alignment Tear Layer, WAVE Lens Designer applies the current settings (lens diameter, design mode) to the design and aligns the tear layer thickness graph to the corneal reference line.

Please note that if you click on this after making modifications to the lens, it will reset all manual adjustments. This alignment design may need to be adjusted to avoid lens adhesion.

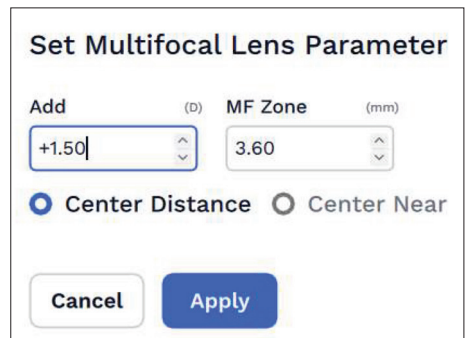
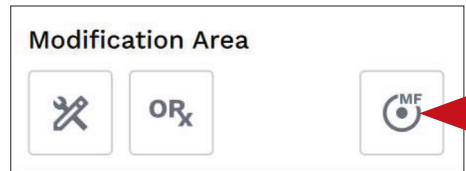
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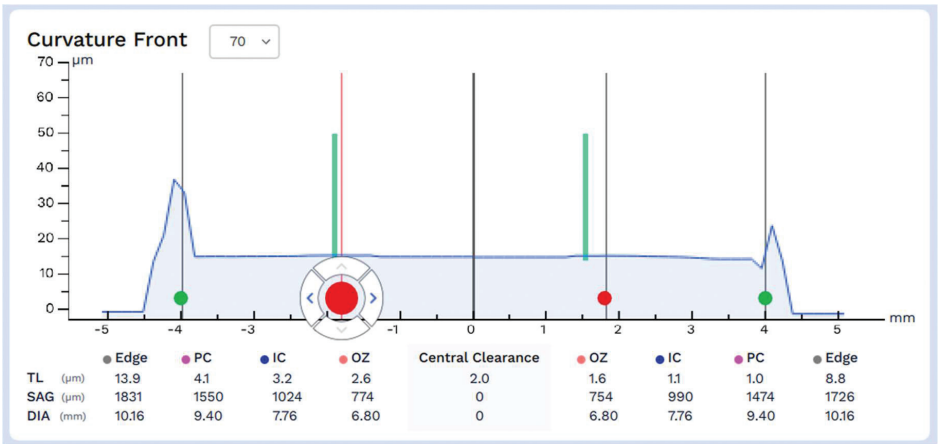
You can design a multifocal corneal lens with WAVE Lens Designer. To do so, **click on Multifocal Adjustment** and enter the ADD value in the refraction box.

For a successful multifocal design:

- Start with a lens design that provides good distance vision and is well centered.
- Determine which eye is the dominant eye. What is the average pupil size? What is the patient currently wearing, under-minus, mono-vision, or previous MF lenses?
- You may want to maximize the plus for both eyes when considering power. Sometimes even adding +0.25D or +0.50D in the nondominant eye can be helpful.
- It is also important to set the patient's expectations!

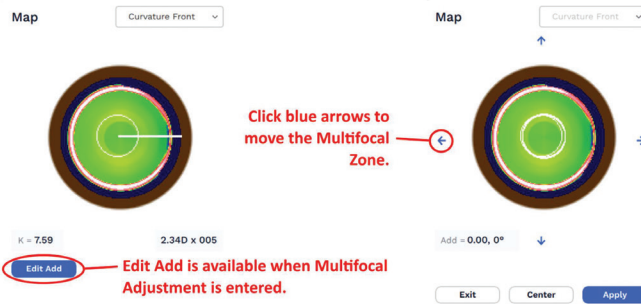
You have the option to design a lens with CENTER NEAR or CENTER DISTANCE. Click on apply and WAVE Lens Designer designs a multifocal lens. If you click on the front surface curvature map you can modify the diameter of the CENTER NEAR or CENTER DISTANCE zone and its position.





The red control balls show the Multifocal zone width and the green control balls show the front optical zone width.

Clicking on Edit Add allows you to move the CENTER NEAR or CENTER DISTANCE zone position.



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Topography Based Since 1999