

AS WORN VERSUS AS PRESCRIBED

Sheridan OPTICAL

INTRODUCTION

Free Form lens designs by Sheridan Optical consider the interaction between the lens and the eye. The power of each lens is uniquely calculated to compensate for eye movement. No longer is the Optical Center or the Prism Reference Point (PRP) the only optically correct point on each lens. Every point on the lens is recalculated to compensate for the user's eye movement around the lens and the corresponding angles between the eye and the lens.

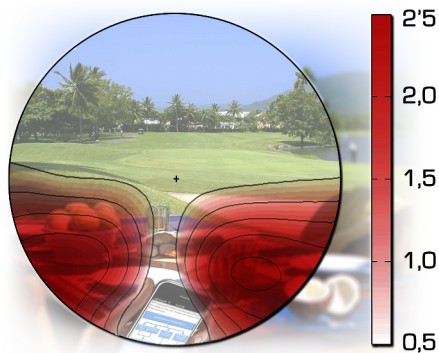
This simple fact has a dramatic impact in the optical quality of lenses. Our As Worn lenses provide the highest visual acuity for every user, while conventional lenses lose performance depending on the user's prescription.

AS WORN LENS

Our As Worn lenses are recalculated and optimized for every user. This is one of the biggest advantages of our Free Form designs. The highest visual acuity is achieved for any prescription, manufactured with any base curve and any material.

As Worn technology provides the best optical quality by changing the power on every point in such a way that the patient's required Rx is achieved in a larger area. The effect on a progressive lens is optimum vision in the far (including lateral far region), intermediate and near regions.

As Worn Lens by Sheridan Optical

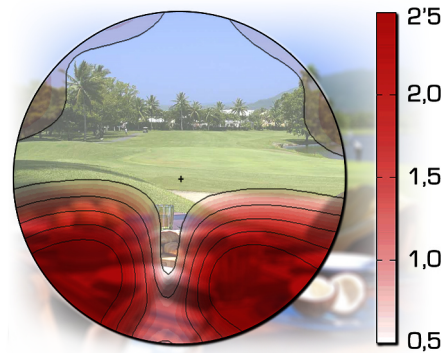


- Larger optimal visual zones
- Less astigmatism

CONVENTIONAL LENS

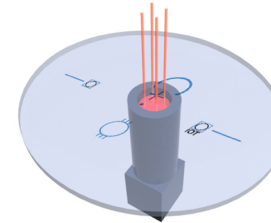
A conventional lens does not take into account the dynamics of the eye. It is calculated using just a static design which is the same for every patient. The wearer's visual experience is less than perfect. This lack of optical quality has an increased impact in the near vision zone and in the lateral distance area, reducing the visual quality for users.

Conventional Lens



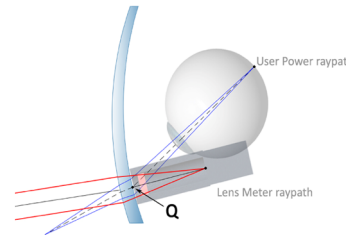
- Smaller optimal visual zones
- More astigmatism

UNDERSTANDING AS WORN



Measuring A Lens:

Everyone measures the power of a lens with a Lensmeter (aka Lensometer, Vertometer or Focimeter). Notice how the lens surface is placed perpendicular to the ray beam of the instrument. The Lensmeter is unable to simulate the rotation of the eye and it is not possible to accurately measure the patient's perceived power at any point on the lens. Conventional lenses yield the correct power when measured like this. However the power is perfect only at the Optical Center or PRP. This calculation method is known as nominal power calculation. It assumes the same design is good for every prescription. We call this a "static" design.

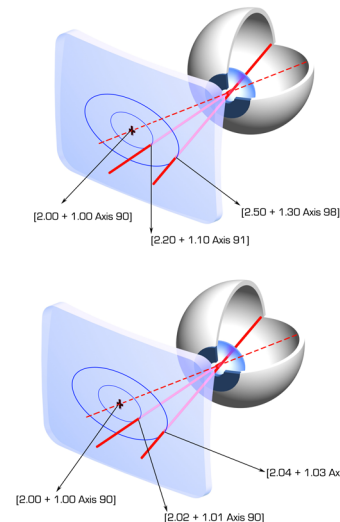


Optical Angles:

But the eye's optical mechanics are very different from the optical system used to measure a lens. As the eye rotates around its center, the light follows an oblique trajectory that alters the effective power experienced by the wearer. The lens curvature and the corresponding angle of light affect the tilt on the optics and from the perspective of the eye. This tilt creates different angles in different places. As Worn designs by Sheridan Optical compensate every point on the lens surface in such a way that the prescribed Rx is achieved in a larger area.

Errors in a Conventional Lens:

This diagram illustrates the power experienced by the wearer of a conventional Single Vision lens when looking through various areas of the lens. The difference in power compared to the one prescribed can be more than 0.5D for a lateral gaze of 30°. This effect is known as oblique aberration, and is the main optical aberration that cannot be resolved by conventional surfacing techniques.



Effect of As Worn:

This diagram shows the effect of a lens with the same prescription, calculated with a Sheridan Optical As Worn design, ground with Digital Free Form equipment. The power experienced by the wearer is stable throughout the whole lens, providing perfect vision.