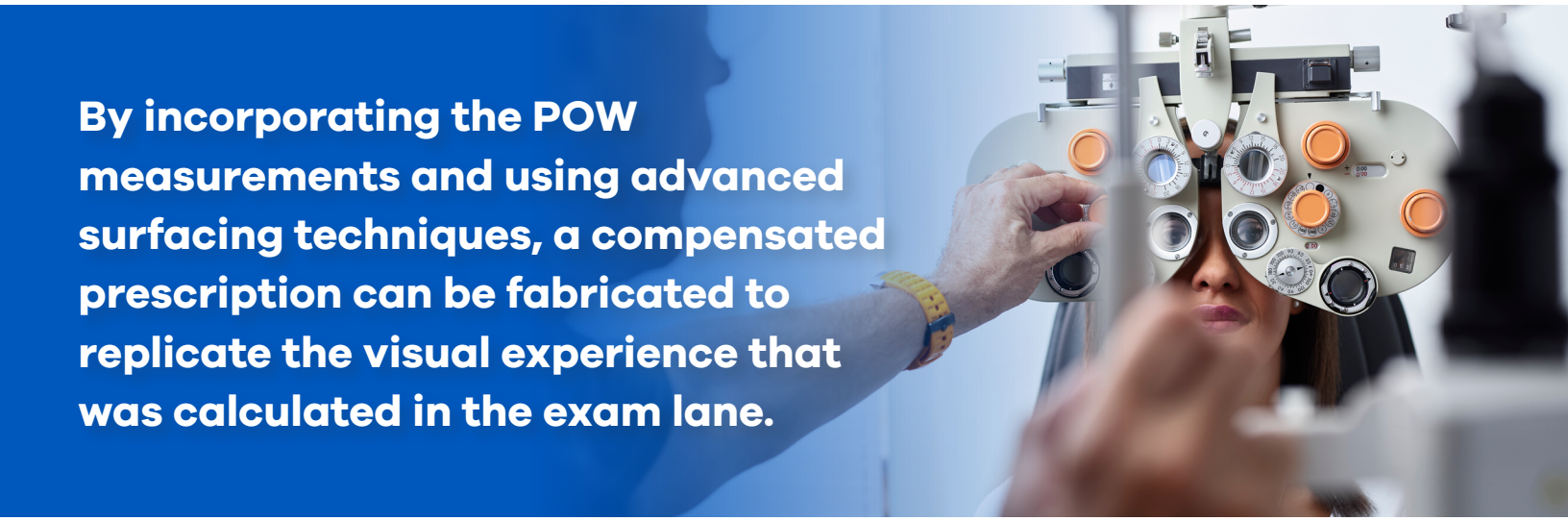
How to achieve 360° Visual Comfort™ for your single vision patients

By incorporating the POW measurements and using advanced surfacing techniques, a compensated prescription can be fabricated to replicate the visual experience that was calculated in the exam lane.

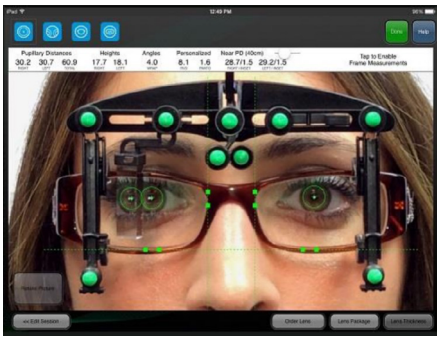


Vision is considered to be the most valuable of all the senses and obtaining maximum acuity at all distances begins with the eye exam. During the exam, many tests are performed to find the optimum prescription that balances the vision between the two eyes. Also, measuring eye alignment and teaming, through phoric, tropic or pursute positioning, can be a significant part of the eye exam to optimize visual comfort. Translating the final prescription found in the exam room to the chosen eyewear is an often-overlooked science that, when converted, can optimize visual performance and comfort, enhancing the overall patient experience. The position of a lens in front of an eye will influence the overall power, and the manner the prescription is found during the exam versus the way it is positioned in the glasses can vary significantly.

The refraction, or the process that determines if any corrective power is needed, whether hyperopic, myopic and/or cylindrical powers, is necessary to refine the image precisely on the fovea. This process takes place by using a phoropter. The eye chart will be placed as close to optical infinity (beyond 20 feet) as possible to reduce accommodation during the refraction. The phoropter will be positioned in front of the eyes with the aperture and lens positioned at 0 degrees in the vertical and horizontal meridians. The eye holds central fixation in front of the lens, viewing through the optical center at a set distance from the front of the eye. The subjective responses from given choices in clarity are refined to a final, binocularly balanced glasses prescription.

The Impact of Position of Wear Measurements

The final glasses prescription is represented by a spherical and/or cylindrical power and the cylinder orientation. This prescription represents the powers determined in a fixed setting with static positioning of the phoropter. This, however, does not represent the way the prescription is worn in the final frame of choice. Every person's anatomy is unique and individual. This uniqueness has an effect on how every frame is positioned on the face. This wearing location is called position of wear (POW) and is represented by the tilt angle, wrap angle, vertex distance and where the eyes center in the aperture of the frame. Each of these measurements will be distinctively different with every face and frame.



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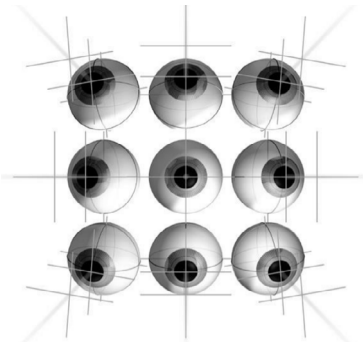
While positioning the optical center of the lens directly in front of the eyes visual axis is important and critical for acuity, calculating for the POW measurements will add to and enhance the final viewing prescription. When a lens is tilted, vertically and/or horizontally, the overall effective power of that lens is changed and cylinder is induced. Also, adjusting the vertex distance, or the distance from the front of the eye to the back of the lens, will change the overall effective power of the lens. The further away the lens is positioned from the eye, the more plus, or less minus power, will be induced. By incorporating the POW measurements and using advanced surfacing techniques, a compensated prescription can be fabricated to replicate the visual experience that was calculated in the exam lane.

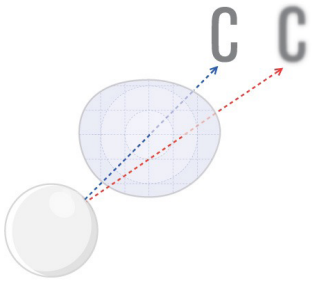
Implementing Free Form Edging Technology

Lens choices in the past were simple and unrefined in their detail due to antiquated surfacing technology. Almost all lenses were chosen based on what base curve would match the prescription best. Looking through the optical center of a conventional base curve system works adequately, but as the eyes rotate off center to the periphery, aberrations begin to disrupt the quality of vision. This is especially exacerbated when the prescription is large or cylinder is present. The base curve system is only optimized for one curve and by splitting the power distribution with cylinder the optics become compromised, more notably in the periphery of the lens.

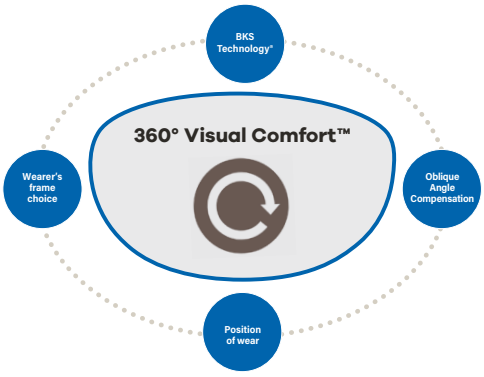
By utilizing advanced free form technologies, surfacing details can be refined significantly by producing a precise power distribution throughout the entirety of the back surface of the lens, without base curve considerations. This point-by-point surfacing on the back side of the lens takes into account thousands of off-axis power aberrations. Complex algorithms go into analyzing every prescription and allow the surfacing detail to nullify the unwanted peripheral aberrations. The incorporation of POW measurements into the lens design, on top of the precise free form surfacing, assures clear and comfortable vision through 360 degrees of the lens, especially with higher prescriptions and/or cylinder.



These cutting-edge algorithms also take into consideration eye rotations as the eyes move out to oblique angles. Listing's Law states that as the eyes move into these oblique positions, they will subsequently rotate roughly 8 degrees clockwise or counter-clockwise depending on the viewing angle. This understanding has often been overlooked as an area of compensation. When rotation of the eye occurs, inaccurate power distribution to the oblique lens correction will be evident, even with POW measurements. By adjusting for this rotation, correct cylinder powers can be achieved guaranteeing clear and comfortable 360-degree vision throughout the lens entirety.



360° Visual Comfort Achieved



Assuming a pristine optical pathway and eye health, maximum ocular clarity can be enhanced by using today's cutting-edge lens solutions. MySV™ lens is an individually focused single vision lens offering 360-degree visual comfort that utilizes this advanced lens surfacing technology. Visual comfort can be greatly improved with MySV lenses, especially with higher powers with cylinder. Besides the benefit of applying POW measurements, MySV lenses also take into consideration eye rotations notably in oblique angles. Taking into consideration the frame curvatures, MySV allows for accurate lens fitting for any frame, creating thinner lenses and improved wearing comfort.

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