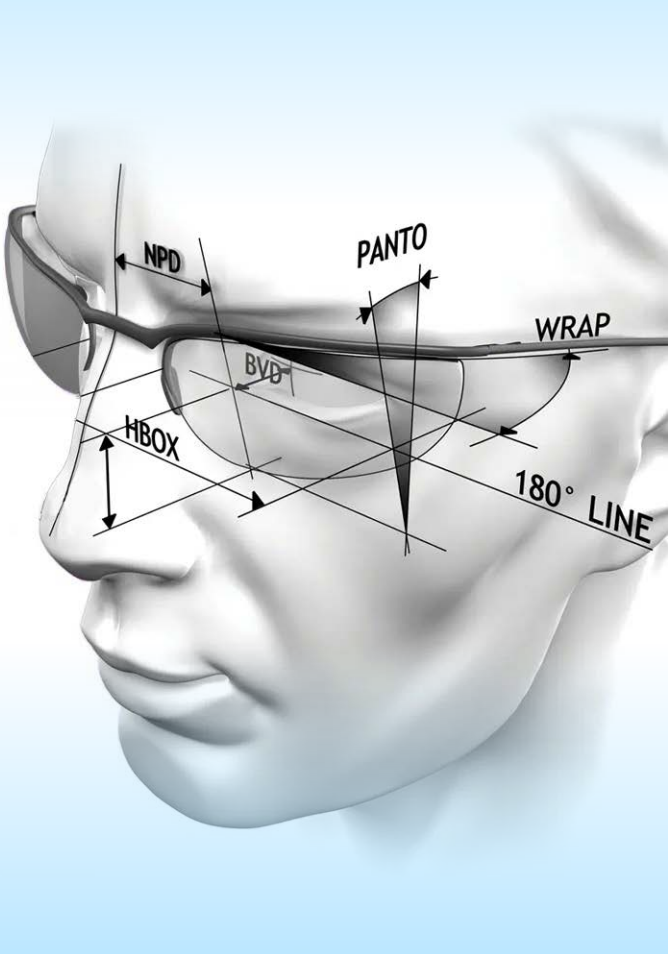
Compensated Lenses FAQ Guide

Problem:
The prescribed lenses in a frame will not have the same effective power as the lenses in the phoropter. Understanding why the prescription in the lenses is different from the prescription ordered and may not be an exact match can be confusing.

Solution:
Lens powers are compensated by your laboratory to account for how they will be worn.

This document will help you understand:

1. Why the lenses in the frame have a different effective power than the lenses in the phoropter
2. Why the lenses are compensated
3. What you need to know in order to verify the lenses received from their lab



Definitions you need to know

Compensated power:
The adjusted lens power calculated by the lab that can be measured by a lensometer.

Prescribed power:
The power identified in the phoropter as prescribed by the doctor.

Effective power:
The power perceived by the wearer as a result of that lens being placed in front of their eyes.

NOTE:
The "prescribed power" and the "effective power" should always be the same.

Pantoscopic tilt:
Measured in degrees, this is the tilt in the vertical axis of the frame placing the top of the eye wire farther from the face than the bottom.

Face form or wrap:
Measured in degrees, this is the curvature of the front of the frame as seen from a top-down view.

Vertex distance:
Measured in millimeters, this is the distance from the front surface of the eye to the back of the lens.

Free form:
The manufacturing process that uses computer-controlled surfacing to digitally carve a personalized prescription onto the lens surface so it matches each wearer's exact visual needs.

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Why are lens prescriptions compensated?

The refraction process does not perfectly replicate what the wearer will experience when they try on their new glasses for the first time. Compensation is important because it accommodates for the changes that take place during the refraction to the frame try-on and measurements.

When the phoropter is put in front of the patient's eyes, the lenses of the phoropter are at a set, predictable position. The lenses sit perpendicular to the floor and parallel to the patient's face, with no wrap or face form. Finally, the distance from the patient's eye to the lens is a fixed distance. The lenses in the phoropter are small perfect circles, allowing the patient to be looking through the optimal visual point in that lens.

The reality is, during the frame selection process, everything changes!

TIP:
It is best to adjust a frame to fit the patient before taking position of wear measurements.

What's the difference between the patient's vision in the exam lane vs. the real world?

In the exam lane, the patient is focusing at a fixed distance under optimal lighting conditions while looking through the clearest part of the lens. The phoropter has no wrap, no pantoscopic tilt, and is at a fixed distance from the patient's eyes.

In the real world, the patient has to focus on multiple distances under a variety of lighting conditions and through all areas of the eyeglass lens. Nearly every frame will have some amount of wrap and pantoscopic tilt, and each frame's vertex distance will depend on the frame style.

Why do the lenses not match what I ordered?

Differences between the phoropter and the frame can change the effective power the patient experiences. In order to adjust for these discrepancies, the prescription in the lens is compensated.

Why is the compensated power falling outside of ANSI standards?

In lens compensation, higher prescriptions are more affected by changes in the lens position. ANSI tolerances are typically tighter for higher prescriptions, so the compensated power may exceed standard tolerance when compared directly to the written prescription. However, the compensated power is mathematically adjusted so the patient's effective prescription matches what the doctor prescribed.

How do I know if the compensation is accurate?

The laboratory uses mathematical calculations to determine the accurate amount of lens compensation based on the position of wear measurements provided, or based on our standard default measurements.

An example of these calculations is Martin's Tilt Formula:
D(tan2a) = Induced Cylinder Power
(Where D = dioptric power of the meridian of tilt and a = angle of excessive tilt).

Note: HOYA's default measurements are Wrap Angle = 4.4, Pantoscopic Tilt = 8.3, and Vertex Distance = 12.3.

How does the patient's frame (adjustments to the patient's face) affect lens compensation?

The patient's frame will have a different vertex distance, pantoscopic tilt, and wrap angle than the phoropter. These differences alter the patient's effective prescription in many ways.

For example:

The vertex distance affects the magnification power the patient experiences. The farther the lens is from the eye, the more plus power it will induce. Conversely, the closer the lens is to the eye, the more minus power it will induce. Also, the stronger the lens prescription, the more impact the effect will have, therefore, a -6.00 lens might feel like a -5.62 if pushed farther away from the eyes, but a -2.00 might feel like a -1.89.

Rotating the lens will induce astigmatic power in the same meridian as the axis of rotation. For example, pantoscopic tilt and the wrap angle will affect the cylindrical power of the lens, even if the prescribed lens has no cylinder power in it, inducing unwanted astigmatic power.

Pantoscopic tilt will induce astigmatism across the 180-degree meridian and wrap angle will induce astigmatism across the 90-degree meridian.

These adjustments will also affect the perceived fitting height and pupil distance of the glasses. Increasing pantoscopic tilt makes the fitting height feel higher, and increasing the wrap angle makes the pupil distance feel wider.

A rule of thumb: The optical center is often manipulated by one millimeter for every two degrees of pantoscopic tilt.

Why are not all lenses compensated?

HOYA Vision Care is a pioneer in free form technology, which is what makes lens compensation possible. Conventional lenses do not allow the same level of personalization, so compensation is a concept that is commonly associated with premium lens designs.

Why do my patient's first and second pair not have the same prescription?

Frame fit is the likely culprit. Different vertex distances, pantoscopic tilt, and wrap angles will calculate different compensations. This is often the case with a clear and a sun pair, because the sun pair will likely have significantly more wrap than the clear pair.

How do I verify compensated lenses?

Premium lens designs that have been compensated by your laboratory should be verified against the compensated prescription on the invoice, not the prescription that was ordered. Some premium lens designs from HOYA Vision Care include Quality Cards for your patients as a record of the premium lenses you prescribed and the compensated prescription.

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