

## Hands-on Workshop: Introduction to Lensometry

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Course Length: 2 Hours

Intended Audience: Opticians, Optometrists, Technicians

This course will outline all of the aspects of the basics of using the manual lensometer. While also understanding the ANSI Standards. You will leave here having a better understanding how utilizing the manual lensometer.

Learning Objectives:

- Identify the parts of a Lensometer
- Neutralize eyewear effectively
- Understand basic prism functions
- Gain knowledge of ANSI standards
- Understand steps to read single vision vs bifocal eyewear
- Understand how to calibrate the lensometer

Outline and Timeline:

- I. Introduction and the why we are here: **5 minutes**
  - a. Talking about experience in using the lensometer
  - b. Why we need to know how to use one.
- II. Parts of the Lensometer: **15 Minutes**
  - a. **Eyepiece** - Used to view the mires inside of the reticles when neutralizing the RX on a pair of eyeglasses or contacts.
  - b. **Reticle Adjustment Knob** - Used to rotate the prism reticles to align prism read by the mires.
  - c. **Prism Compensator** - Used to assist in read the amount of prism in the lens. Sub use is to move mires into a better viewing spot
  - d. when near the outer limits due to RX or prism thinning in a progressive
  - e. **Lens Marker** – Device used for placing ink marks on the lens indicating specific placement of reading on the lens.
  - f. **Gimbal (Lens Holder)** - Used to hold the lens in place and against the lens stop.
  - g. **Lens Stop** - Is the calibrated spot where the back vertex is at the appropriate distance to be read. Also used in conjunction with the gimbal
  - h. **Spectacle or Frame Table** - Used to help level the frame when reading a pair of glasses ensuring it is level on the horizontal meridian. Also a specified flat surface to calibrate the Lens Clock.

- i. **Magnifier** – Lens at the end of the lensometer to magnify the axis scale
- j. **Axis Adjustment Knob** - Used to align a sphere-cylindrical lens along the appropriate axial meridian for that specific lens. Scale of 0-180 degrees.
- k. **Filter Control** – Controller lever for switching between no filter and a high contrast filter.
- l. **Inclination Control** - Used to lock the Len Meter in place to the height of the user.
- m. **Power Drum** – Used to move the lenses inside the lens meter to neutralize the power of the pair of eyeglasses or contacts. Gives a positive or negative power for that meridian in 1/8th diopters.

### III. Examples of Lens: 15 minutes

- a. Types of lenses we work with, lens theory and understand nominal lens power.
  - i. Sphere powers
  - ii. Astigmatism power
  - iii. Bifocals
  - iv. Progressives
  - v. Prism

### IV. Reading power off of the eyewear: 25 Minutes

- a. Using the lensometer
  - i. place the lens in-between the gimbal and lens stop.
  - ii. You always rotate the power drum to most plus to start and work you way to the minus side.
  - iii. The first mires to come clear are the Sphere ones.
  - iv. Clear up mires with axis dial.(if Necessary)
  - v. Once found rotate more plus to ensure they are the first mires.
  - vi. Then rotate more minus the second if any to come clear are the cylinder ones.
  - vii. Record RX information.
- b. Understanding how to read the various types of lenses through examples
  - i. SV
  - ii. Bifocal
  - iii. Progressive

### V. Practical experience: 30 Minutes

- a. Several examples reading eyewear
  - i. SV
    - 1. Lens 1 – Spherical + power
    - 2. Lens 2 – Spherical + power
    - 3. Lens 3 – Spherical – power
    - 4. Lens 4 – Spherical – power
    - 5. Lens 5 – Astigmatic
    - 6. Lens 6 – Astigmatic

ii. Bifocal

1. Lens 1 – Spherical + power
2. Lens 2 – Spherical + power
3. Lens 3 – Spherical – power
4. Lens 4 – Spherical – power
5. Lens 5 – Astigmatic
6. Lens 6 – Astigmatic

iii. Progressive

1. Lens 1 – Spherical + power
2. Lens 2 – Spherical + power
3. Lens 3 – Spherical – power
4. Lens 4 – Spherical – power
5. Lens 5 – Astigmatic
6. Lens 6 – Astigmatic

VI. **How to understand and apply ANSI : 20 Minutes**

- a. Using ANSI standards to verify what is in and out of tolerance.
- b. Walking through the standards and what they look like in the lensometer.

VII. Conclusion / Q&A: **10 minutes**

Total time: 120 minutes.