On behalf of Vision Expo, we sincerely thank you for being with us this year.

Vision Expo Has Gone Green!

We have eliminated all paper session evaluation forms. Please be sure to complete your electronic session evaluations online when you login to request your CE Letter for each course you attended! Your feedback is important to us as our Education Planning Committee considers content and speakers for future meetings to provide you with the best education possible.

VISION EXPO

ABO Basic Exam Review

Domain IV: Instrumentation

National Federation of Opticianry Schools
Formal Opticianry Education…. We teach the Why

Presented by Tracy E Bennett, LDO, ABO-AC, NCLEC

Content Outline

ABO Test Content Outline	Weight	Approximate number of questions
IV. Instrumentation	16%	18
A. Use of lens power devices		4
B. Select ophthalmic tool, instruments, and equipment		4
C. Use and maintain ophthalmic tool, instruments, and equipment		10

Domain IV: Instrumentation

- **Power measuring device - Lensmeter (lensometer, vertometer, focimeter)**
- **Lens measuring devices**
- **Dispensing instrumentation**
- **Standard maintenance and calibration**

Lensmeter (A.K.A. Vertometer)

- Instrument that measures lens power
  - Measures back vertex power when reading the distance portion of the lens
  - Measures front vertex power when reading the near portion of the lens
- Used to measure lens power
  - Neutralization – when power is unknown
  - Verification – when power is known
- Used to locate the Major Reference Point
  - Optical Center (OC)
  - Prism Reference Point (PRP) when prism is required by the prescription (Rx prism)

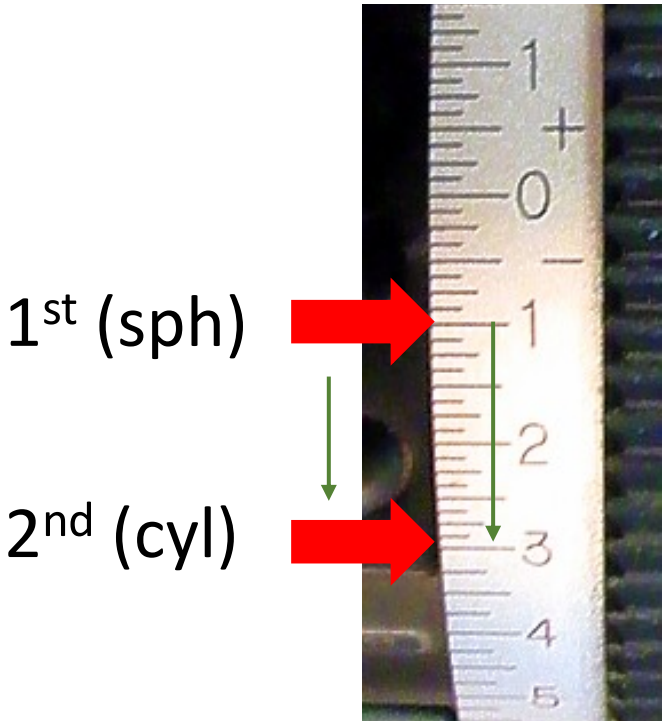
Marco 101

Lensmeter Readings to Prescription

- The **first reading** on the power wheel is recorded when the **spherical power lines** are in focus and the **axis wheel** is aligned to the spherical power meridian (unbroken/straight).
- Sphere and axis readings are **recorded in prescription form**.
- The **second reading** occurs when the **cylinder lines** are in focus. However, the value recorded in the prescription is generally *not* the value on the power wheel.
- The **cylinder value** is written as the **distance traveled** on the power drum from the first to the second reading.
  Example: 1st reading -2.00, 2nd reading -3.00 = -1.00 cyl value Rx
  Rx written as **-2.00 -1.00 x axis** reading

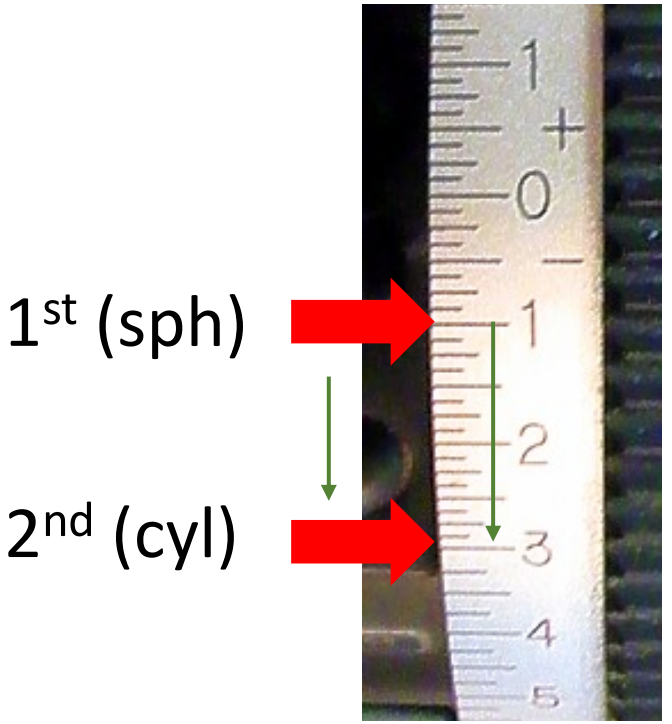
Cylinder Written in the Prescription

- The cylinder indicated on the power drum is generally not the value that is written as the cylinder in the prescription.
- The **cylinder value** is written as the **distance traveled** on the power drum from the first to the second reading.
- **Example:**
  1st reading -1.00
  2nd reading -3.00
- **What is the written cylinder?**



Cylinder Written in the Prescription

- The cylinder indicated on the power drum is generally not the value that is written as the cylinder in the prescription.
- The **cylinder value** is written as the **distance traveled** on the power drum from the first to the second reading.
- **Example:**
  1st reading -1.00
  2nd reading -3.00
- **What is the written cylinder?** **-2.00**



Example 1

- **First Reading**
  → *Sphere lines focus*
  → Power wheel reads +5.00
- **Axis wheel** reads 180
- **Second Reading**
  → *Cylinder lines focus*
  →Power wheel reads +2.00

- **What is the written power of the lens?**

Example 1 ANSWER

- **First Reading**
  → *Sphere lines focus*
  → Power wheel reads <u>+5.00</u>
- **Axis wheel** reads <u>180</u>

Rx <u>+5.00</u> x <u>180</u>

- **Second Reading**
  → *Cylinder lines focus*
  →Power wheel reads <u>+2.00</u>

Rx <u>+5.00 -3.00 x 180</u>

- **What is the written power of the lens?**

Example 2

- **First Reading**
  → *Sphere lines focus*
  → Power wheel reads -6.00
- **Axis wheel** reads 64
- **Second Reading**
  → *Cylinder lines focus*
  →Power wheel reads -4.00

- **What is the written power of the lens?**

Example 2 ANSWER

- **First Reading**
  → *Sphere lines focus*
  → Power wheel reads -6.00
- **Axis wheel** reads 64

Rx -6.00 x 064

- **Second Reading**
  → *Cylinder lines focus*
  →Power wheel reads -4.00

Rx -6.00 +2.00 x 064

- **What is the written power of the lens?**

Ophthalmic Tools, Instruments and Equipment

The following slides are a few samples of the many available tools - used in both lab and dispensing settings

Wide Jaw Angle Plier

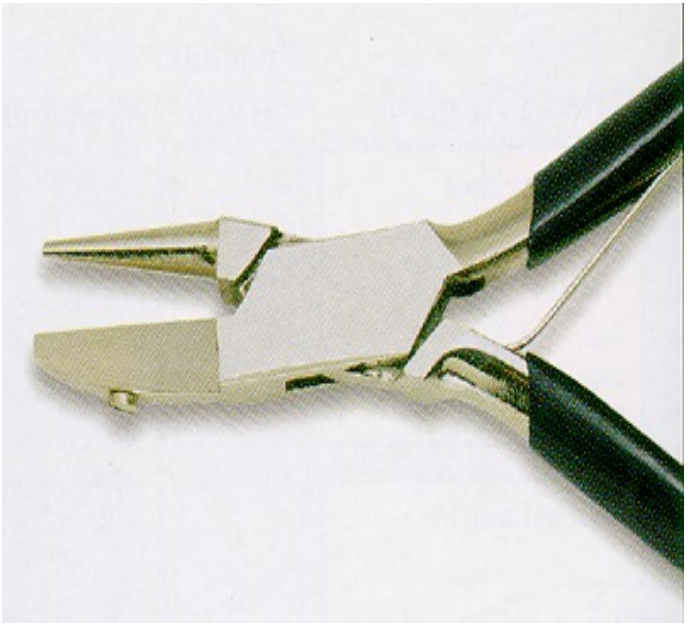
- Used for making adjustments to the endpieces or hinge areas of the frame.
- Using a tool is the preferred method. When using a plier work as close to the area adjusting as possible. Support the area whenever possible.

Nylon Gripping plier

- Great for double plier work.
- Make sure the nylon pads are smooth.
- Protects the frame from plier marks

Flat Nylon/Round Metal Plier

- Great tool for semi rimless
- Good general adjustment tool



European Nose Pad Plier

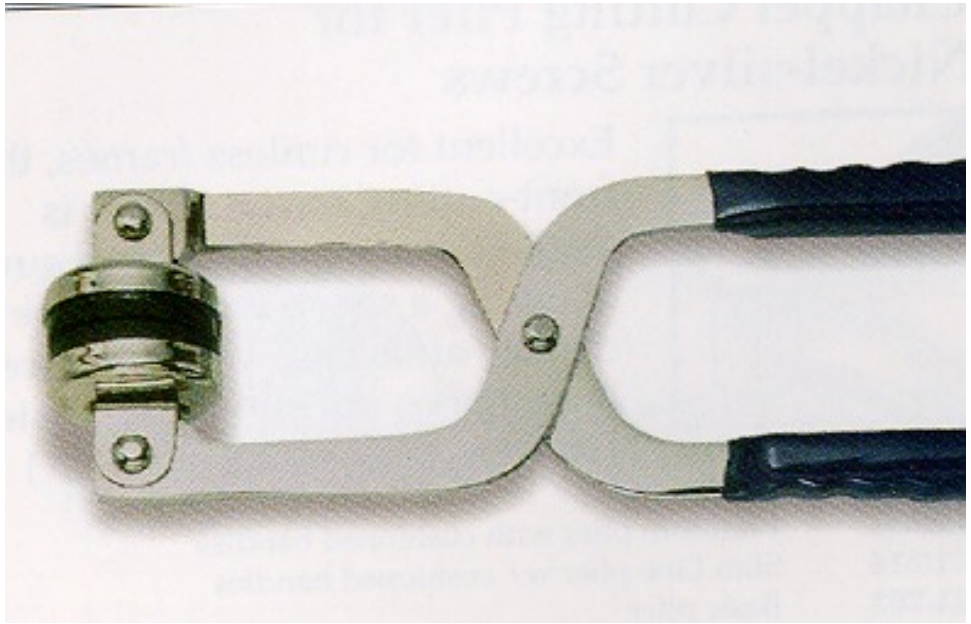
- Used in Adjusting Nose Pad Angles
  - Frontal
  - Vertical
  - Splay
- Raising and Lowering Guard Arms
- Increasing and Decreasing Vertex Distance

Cutting Pliers

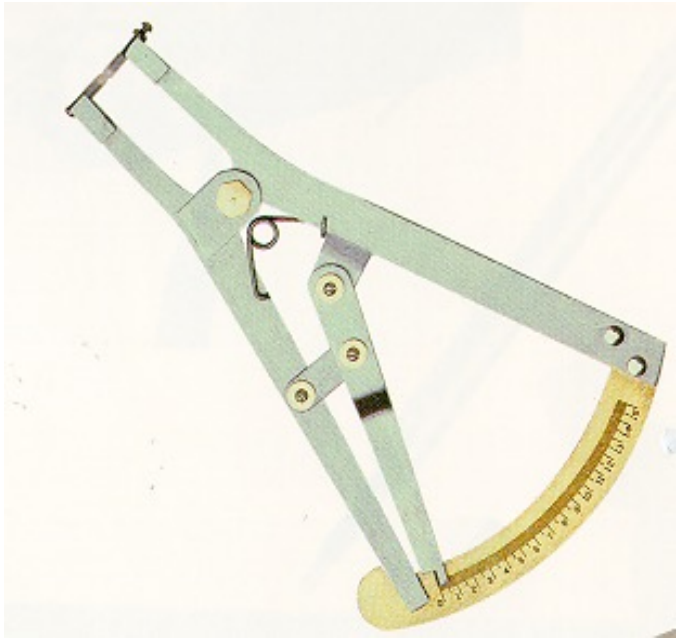
- Used for Shortening Temple Lengths
- Used for Cutting Screws

Axis Pliers

- Used to rotate the lens in a frame
- Helps correct misaligned lenses



Lens Caliper



- Measures the thickness of ophthalmic lenses
- Center thickness measured at the MRP (OC or PRP)
- Edge thickness measured at thickest or thinnest edge

Lens Clock/Geneva Lens Measure

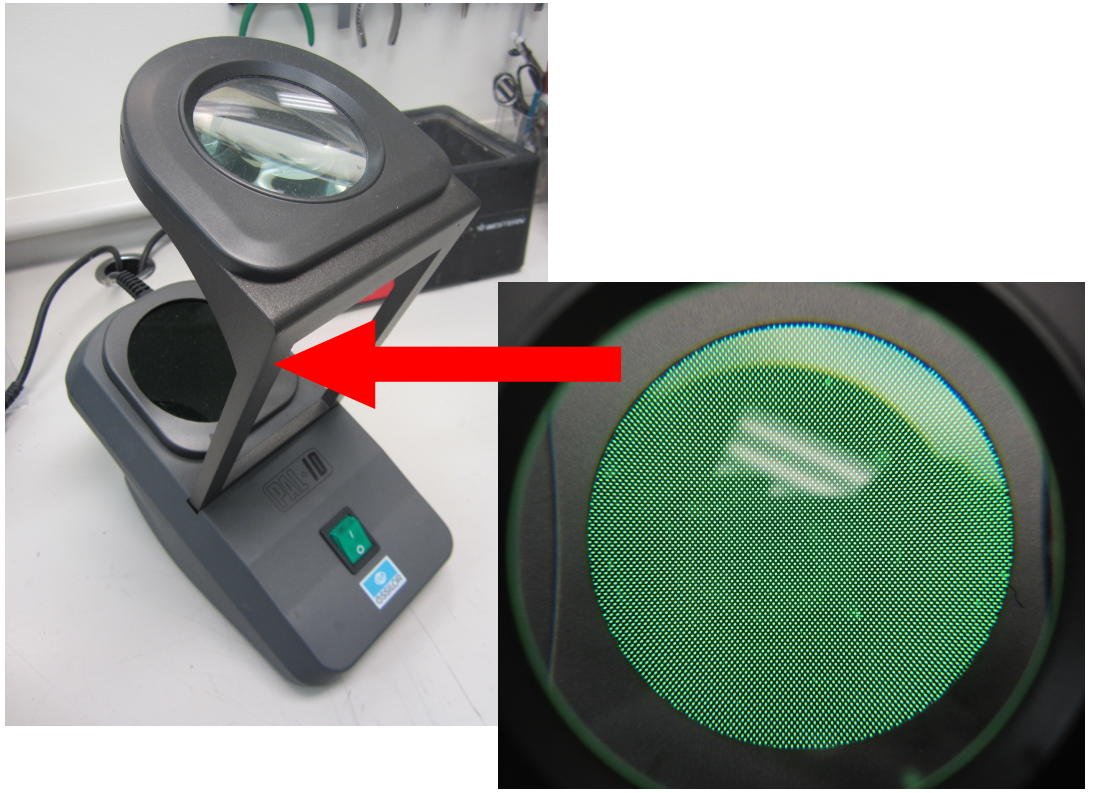
- Measures front and back curves of ophthalmic lenses and converts them to a dioptric power value.
- Instrument indexed to a 1.53* index of refraction (compensation required for true curve power determination). *Unless otherwise marked.
- Can be used to verify slab-off prism amount.

Distometer

- Used to measure vertex distance from the eye to the back of the lens.
- More important for higher powered lenses.
- Flat side against closed eyelid, press to expand toward back of lens surface.

Progressive Lens Identifier (PAL-ID)

- Use to locate hidden 180 markings, manufacture logo, and ADD power markings on PAL.
- Assists in the remarking process for PALs.
- Lens held between magnifier and light source.
- Green pattern helps better identify lens markings.



Thank You

Good Luck on the ABO

- For more information, contact the NFOS or visit our website at www.nfos.org

- Power-point by Professor Robert J. Russo – Email: information@nfos.org