Ergonomics of Eyepiece-less Stereo Microscopes

- ✓ Operators enjoy greater freedom of head movement
- ✓ Increased user comfort yields higher user performance
- ✓ Improved operator accuracy, speed and efficiency

Exit pupil and its role in ergonomics

A person's eyes and a stereo microscope both have pupils. For the eye it's an entry pupil, for a microscope it's the exit pupil. The eye's entry pupil is in the center of the eye and measures around 3mm to 7mm in diameter. A conventional eyepiece microscope's exit pupil measures from 1.5mm to 3mm.

*Left eye: 3mm light diameter from a **conventional microscope.***
*Right eye: 35mm light diameter from an **eyepiece-less microscope.***

When using a microscope, the eye's entry pupil and the microscope's exit pupils need to match up almost exactly or at least be close, to produce the cleanest and clearest image of the object.

How do these constraints affect operator performance and productivity?

- To keep exit pupils aligned, operators must severely limit head movement
- Operators must maintain an unnatural, fixed body position to keep their eyes in position with the eyepieces
- Each time an operator loses focus or takes their eyes away from the eyepieces, the eyes must adjust. Repetitive iris expansion and contraction can cause eye strain and fatigue
- Traditional microscope eyepieces are not optimal for operators who wear corrective lens or safety goggles. Employers may need to accommodate them by adding sometimes costly adapters and extensions
- Because operators must stay close to the eyepieces, they may come in direct contact with the eyepieces and eye infections can occur if the microscope is used by multiple operators.

Vision Engineering enters the picture with an expanded view

Eyepieces are replaced by a window through which the exit pupil is projected with an exit pupil diameter up to 35mm, depending on whether the microscope is the Mantis (inspection and rework), Lynx EVO (inspection and rework) or Swift PRO (inspection and measuring) model.

Left: Conventional stereo microscope dictates an unnatural, fixed body position. Right: Eyepiece-less stereo microscope improves range of motion and user comfort.

The revolutionary innovation vanquishes a multitude of problems. Operators experience less fatigue and strain making them more efficient, accurate and productive.

The eyepiece-less technology allows them to:

- Enjoy greater freedom of head movement
- Hold a natural and comfortable body position
- Remove the need to precisely align their eyes
- Move their bodies without losing the image
- Manipulate objects without losing focus
- Improve hand to eye coordination
- Gain enhanced depth perception
- Reduce eye strain
- Comfortably wear prescription eyeglasses and goggles
- Avoid eye infections through cross contamination

When purchasing your next inspection or non-contact measurement system, consider how comfort can keep operators more productive for longer and improve operator accuracy, speed and efficiency.

Inspection Systems - Eyepiece and Eyepiece-less Stereo Microscopes

Traditional

Traditional exit pupil of 3mm

SX Series - High quality stereo viewing

Designed as an affordable stereo zoom microscope, the SX Series is a good solution for many industrial inspection applications. The SX Series is a hard working microscope for any application.

SX25, SX45, SX80, SX100

- High quality, traditional microscopes
- Magnification 4x - 320x (optional)
- Binocular and trinocular optics
- Range of stand configurations
- Affordable, entry-level price

Revolutionary

Revolutionary exit pupil of 25mm

Mantis - High performance microscope

The Mantis Family of stereo microscopes has outstanding 3D, 'dynamic' optics designed with patented eyepiece-less technology. Mantis is the first eyepiece-less microscope to revolutionize the microscopy industry.

Mantis Compact, Mantis Elite, Mantis Elite-Cam HD

- Up to- 8x magnification (Compact)
- Up to 20x magnification, with two lens turret (Elite and Elite-Cam HD)
- LED illumination
- Optional factory-integrated HD digital camera (1600 x 1200 pixels)
- MADE IN U.S.A.

Pioneering

Pioneering exit pupil of 35mm

Lynx EVO - Power your productivity

Unique patented Dynascope® technology places the Lynx EVO in a class of its own. Winner of several industry awards, the Lynx EVO is paving the way for the future of eyepiece-less microscope design.

Lynx EVO

- 10:1 zoom range
- 2.7x - 240x maximum magnification range
- LED lighting, substage illumination
- 34° oblique and direct viewer
- Superior ergonomics
- Image & video capture

Our Full Inspection Range

We offer a range of inspection microscopes to take your magnification to the next level. Our patented eyepiece-less optical microscopes offer superb 3 Dimensional images with ergonomic benefits to users. All systems can be fitted with a camera, making it ideal for image capture, training and reporting.

Our digital inspection microscope, EVO Cam, offers stunning image quality, live video streaming and a large field of view and working distance. Visit our website for more information.

Vision-Luxo
Bench Magnifiers

EVO Cam
Digital Microscope

Lynx EVO, Mantis Compact & Mantis Elite/HD Cam
Eyepiece-less Stereo Microscope

SX Series
Stereo Microscope

Call us to schedule a free on-site demo
(800) 644-7264
www.visioneng.us