Vision ENGINEERING

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visioneng.us

# **Mantis:** Superior imaging for a wide range of inspection and re-working tasks

# Unrivaled Mantis advantage...

Businesses choose Vision Engineering's ergonomic stereo microscopes because operators are more comfortable during inspection — more efficient, more accurate and more productive.

## Give your stereo microscope a health check!

### Ergonomic working position

An ergonomic body position makes the Mantis more comfortable, less fatiguing and, more importantly, much easier to use. Additionally, optimal operator ergonomics minimizes the risk of repetitive strain-related injuries. A happy worker is a productive worker.

### Freedom of head movement

An additional benefit of Vision Engineering's patented eyepiece-less design is users do not need to align their eyes with eyepieces. This freedom of movement reduces associated neck and back strain associated with the fixed body position of conventional microscope eyepieces.

### Ability to wear glasses

With Mantis, operators do not need to remove their glasses (or safety glasses) to use the microscope.

### A natural view of the subject

With conventional microscope eyepieces, operators must position their eyes very close to the eyepieces, blocking out ambient light. The intense light exiting the eyepieces causes the pupils to contract. Constant contraction and expansion of the pupils is the main cause of eye fatigue with microscopes.

With the patented eyepieces of Mantis, users sit back from the viewer, allowing ambient light into the eyes. Additionally, the light exiting the 'viewing lens' is spread over a larger area, proving a more natural view of the subject.

### Easy hand-eye co-ordination

Easy hand-eye co-ordination is possible with the Mantis — critical for re-work, repair, dissection and other manipulation tasks. Sitting back from the viewer provides users with much better peripheral vision, so they can co-ordinate hands in a natural manner.

# The Mantis Advantage

Mantis is an award-winning range of ergonomic 3D stereo microscopes which offer exceptional operator comfort and superb 3D imaging. With no awkward eyepieces and nothing to hunch over, operators can increase productivity through a stress-free viewing experience, seeing more and doing more than is possible with conventional microscopes.

There's a Mantis for any application where you would otherwise use a bench magnifier or traditional stereo microscope. Designed for accuracy in the industrial workplace, Mantis is ideal for quality inspection of assemblies, repairs and reworks, sample preparation and dissection, and more. Mantis is the 3D stereo microscope of choice for industries including aerospace, automotive, telecommunications and manufacturing. If you need to magnify it, you need a Mantis.

Each of the Mantis eyepiece-less stereo microscopes not only provides superb 3D imaging, but also allows freedom of head movement which means that operators can move their view around the subject, instead of being restricted to a 2D, top-down view. Use it for inspection, preparation and manipulation tasks, where easy hand-to-eye co-ordination is essential.

*"We were looking for new equipment that could help, and a magnifying display device was consistently the best solution. We now operate two Mantis instruments supplied by Vision Engineering."*

# Ergonomic. Versatile. Productive.

## Mantis Elite

Mantis Elite has enhanced optical performance, comparing to Mantis Compact, including higher magnification, a large field of view and long working distances. Mantis Elite is a perfect alternative to traditional stereo microscopes for a wide range of inspection, preparation and manipulation tasks requiring hand-eye co-ordination.

### Highlights

- ✓ 2x – 20x magnification options (2 in quick change turret)
- ✓ Long working distance and large field of view
- ✓ Superior ergonomics for fatigue-free viewing and increased quality / productivity
- ✓ Superb hand-eye co-ordination for inspection and manipulation tasks
- ✓ True color, LED illumination providing up to 10,000 hours of shadow-free viewing
- ✓ Choice of stands and accessories to suit numerous applications

# Eyepiece-less inspection solution

## Mantis Elite-Cam HD

Mantis Elite-Cam HD is comprised of a standard Mantis Elite 'eyepiece-less' stereo microscope, with a factory integrated HD digital camera, offering truly superb 3D imaging plus the flexibility and convenience of digital image capture.

This system comes complete with easy to use software allowing you to carry out easy-to-use image archiving and annotation. Advanced software for dimensioning and simple measurement is also available as an upgrade.

### Highlights

- ✓ A complete integrated solution – one unit to achieve a multitude of low magnification tasks.
- ✓ Patented optical design allows your eyes and hands to work together resulting in increased throughput, accuracy and reduced scrap and rework.
- ✓ 2x – 20x magnification options with quick change turret allows users to switch between low magnification inspection and high magnification fine detail tasks.
- ✓ Increased head and body freedom for the operator leads to greater productivity, increased throughput, improved quality control and less fatigue.
- ✓ From inspection, preparation, rework and manipulation tasks the Mantis Elite-Cam HD provides exceptional hand-eye co-ordination with easy-to-use imaging software


Mantis Elite-Cam HD with bench stand and floating stage

## Mantis Compact

Mantis Compact a high value stereo microscope which excels in the low magnification range for inspection or manipulation tasks where bench magnifiers have traditionally been used.

Ideal for viewing and manipulation applications, where operator comfort and a low magnification range (up to 8x) is needed. A UV version is also available.

### Highlights

- ✓ 2x, 4x, 6x and 8x quick change objectives
- ✓ Patented eyepiece-less optics maximize head freedom providing unrivalled ergonomic performance
- ✓ Small footprint

Mantis Compact, with a universal stand offers flexibility and minimal footprint. Universal stand allows for system to be moved out of the way when not in use.

# Typical applications

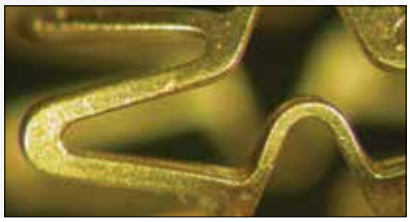
Mantis is ideal for a wide range of precision engineering applications including electronics and PCBs; aerospace and automotive components; medical and dental; hair restoration; agriculture; education; restoration, repair and engraving; forensics, and much more.

## Electronics

Mantis stereo microscopes are ideally suited for electronics PCB inspection and rework.
The patented optical viewing head provides an unrivalled 3D view with ergonomic advantages of simple hand-eye co-ordination and fatigue-free soldering / inspection work.

## Medical devices

From stents to catheters, medical device components require 100% inspection to ensure every product sent out meets the exacting product specifications. Mantis is excellent for critical manual inspection because of its excellent image contrast.



## Plastics and rubber

Rubber seals, packaging, caps and closures are designed and precision manufactured to make them work effectively. Inspection for quality is essential. Rework, such as the removal of flash from the injection mould process may also be required, meaning Mantis' long working distance is essential.

## Precision engineering

Precision engineered components are often critical components and utilized in industries such as aerospace and automotive. Mantis' clear view and superior ergonomics are ideal for critical inspection for defects as they aid visual accuracy and minimize errors caused by user fatigue.

## Dental

Dental prosthetics are medical devices that need to be tailored for each individual.
The manufacturing process often requires magnification from inspecting the initial molds, to color matching the final product.

## Hair restoration

Mantis is a popular solution for use with hair restoration. The detailed and time limited work of splitting hair follicles requires the operator to be able to maintain high levels of concentration and visual accuracy.

# Technical details

## Optical data

| Mantis Compact | | |
|---|---|---|
| **Objective lens** | **Working distance** | **Field of view** |
| **2x** | 6.57" (167mm) | 1.77" (45.0mm) |
| **4x** | 3.78" (96mm) | 1.08" (27.5mm) |
| **6x** | 2.87" (73mm) | 0.76" (19.2mm) |
| **8x** | 2.30" (58.5mm) | 0.56" (14.3mm) |

| Mantis Elite / Elite-Cam HD | | |
|---|---|---|
| **Objective lens** | **Working distance** | **Field of view** |
| **2x** | 6.30" (160mm) | 2.24" (57.0mm) |
| **4x** | 3.78" (96mm) | 1.34" (34.0mm) |
| **6x** | 2.68" (68mm) | 0.91" (23.0mm) |
| **6x SLWD*** | 4.41" (112mm) | 0.79" (20.0mm) |
| **8x** | 2.32" (59mm) | 0.67" (17.0mm) |
| **10x** | 2.13" (54mm) | 0.53" (13.5mm) |
| **15x** | 1.57" (54mm) | 0.35" (8.8mm) |
| **20x** | 1.14" (29mm) | 0.23" (6.5mm) |

*cannot be used together with 2x or 20x lens

## Options

**Floating Stage**

Provides smooth and sensitive control allowing for samples to be accurately inspected. For use with bench stand only.

**Episcopic Illuminator**

Through-the-lens illumination for the inspection of bore holes and complex internal/external features. Iris control for precise light positioning.

**UV Lighting**

Switchable UV-white light illumination for UV inspection applications and fast and accurate fault detection.

**Secondary Link Arm**

A secondary link increases total reach of articulated arm to 847.5mm and provides added flexibility and manoeuvrability.

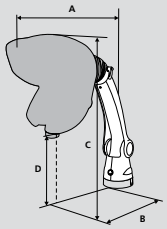
**Floor Stand**

Ideal for inspection where subjects are immobile or require a standing position. For use in conjunction with articulated arm. Lift, swing, tilt and rotate capability.

### Accessories

Lens protection caps
Dust cover
Replacement LED array

### Universal Stand




**Mantis Compact**

**Dimensions:**
**A** = 22.24" (565mm) - 30.51" (775mm)
**B** = 13.19" (335mm) - 21.96" (545mm)
**C** = 15.55" (395mm) - 23.82" (605mm)
**D** = 4.33" (110mm) - 12.60" (320mm)

**Unpacked Weight:**
Head 4.63lbs (2.1kg)
Stand 7.28lbs (3.3kg)

**Packed Weight:**
Head 9.04lbs (4.1kg)
Stand 10.14lbs (4.6kg)

**Mantis Elite / Elite Cam HD**

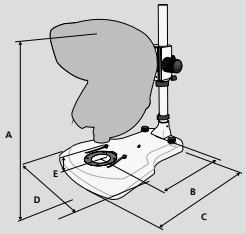
**Dimensions:**
**A** = 23.35" (593mm) - 31.57" (802mm)
**B** = 13.86" (352mm) - 24.49" (622mm)
**C** = 16.34" (415mm) - 24.57" (624mm)
**D** = 4.06" (103mm) - 12.28" (312mm)

**Unpacked Weight:**
Head 6.61lbs (3.0kg)
Stand 7.28lbs (3.3kg)

**Packed Weight:**
Head 11.02lbs (5.0kg)
Stand 9.92lbs (4.6kg)

**Power:**
9V DC external plug transformer, available in all worldwide plug configurations.

### Bench Stand




**Mantis Compact**

**Dimensions:**
**A** = 18.70" (475mm) - 23.93" (608mm)
**B** = 11.81" (300mm)
**C** = 14.96" (380mm)
**D** = 12.99" (330mm)
**E** = 10.08" (256mm max.), less working distance

**Unpacked Weight:**
Head 4.63lbs (2.1kg)
Stand 13.23lbs (5.0kg)

**Packed Weight:**
Head 9.04lbs (4.1kg)
Stand 18.52lbs (8.4kg)

**Mantis Elite / Elite Cam HD**

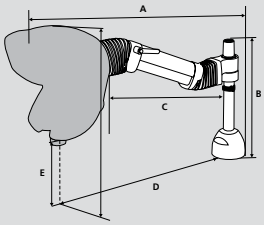
**Dimensions:**
**A** = 19.17" (487mm) - 24.41" (620mm)
**B** = 11.81" (300mm)
**C** = 14.96" (380mm)
**D** = 12.99" (330mm)
**E** = 10.04" (255mm max.), less working distance

**Unpacked Weight:**
Head 6.61lbs (3.0kg)
Stand 11.02lbs (5.0kg)

**Packed Weight:**
Head 11.02lbs (5.0kg)
Stand 18.52" (8.4kg)

**Power:**
100-240VAC 50-60HZ 1.0A Max, available in all worldwide plug configurations.

### Articulated Arm




**Mantis Compact**

**Dimensions:**
**A** = 34.65" (880mm)
**B** = 16.93" (430mm)
**C** = 20.08" (510mm)
**D** = 25.60" (650mm)
**E** = 11.42" (290mm)

**Unpacked Weight:**
Head 4.63lbs (2.1kg)
Stand 24.25lbs (11kg)

**Packed Weight:**
Head 9.04lbs (4.1kg)
Stand 29.76lbs (13.5kg)

**Mantis Elite / Elite Cam HD**

**Dimensions:**
**A** = 34.65" (880mm)
**B** = 16.93" (430mm)
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**Unpacked Weight:**
Head 6.61lbs (3.0kg)
Stand 24.25lbs (11kg)

**Packed Weight:**
Head 11.02lbs (5.0kg)
Stand 29.76lbs (13.5kg)

**Power:**
9V DC external plug transformer, available in all worldwide plug configurations.

### Illumination

**Mantis Compact**

| Lighting Data | | |
|---|---|---|
| Light intensity measured at subject plane with color correction filters. | | |
| 20 LED | 9.400 LUX | Up to 10,000 hours |
| Substage illumination (bench stand only) | | |
| 58 LED | 2.700 LUX | Up to 10,000 hours |

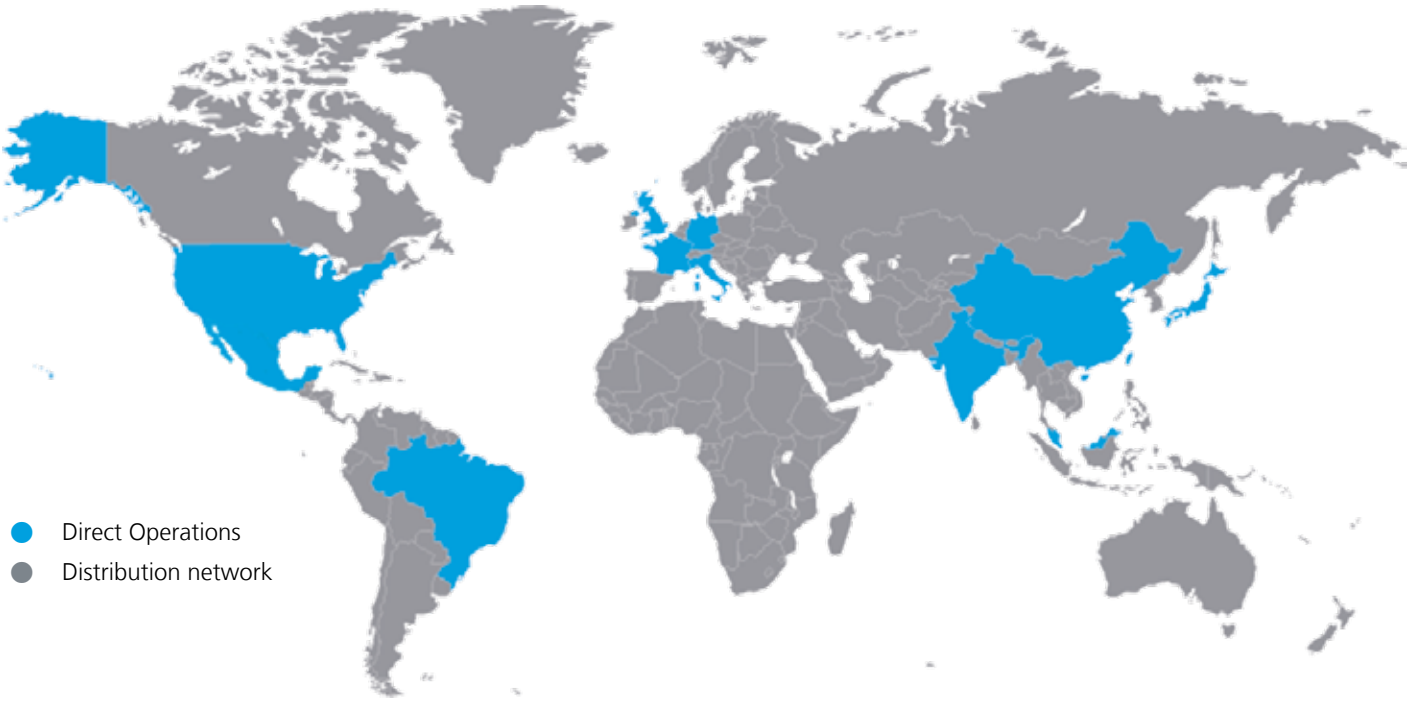
**Mantis Elite / Elite Cam HD**

| Lighting Data | | |
|---|---|---|
| Light intensity measured at subject plane with color correction filters. | | |
| 24 LED | 11.000 LUX | Up to 10,000 hours |
| Substage illumination (bench stand only) | | |
| 58 LED | 2.700 LUX | Up to 10,000 hours |

### Camera

| Camera data | |
|---|---|
| Sensor type | CMOS |
| Resolution (H x W) | 1600 x 1200 pixels |
| Sensor size | 1/3" |
| Pixel size | 2,8 µm |
| Color depth | 8 bits |
| Refresh rate (fps) | 18,3 fps max. |
| Interface | USB 2.0 |
| File formats | BMP, JPEG, PNG |
| Power supply | USB powered |
| Supplied software | uEye Cockpit |

Vision Engineering is a global manufacturer of ergonomic stereo microscopes, digital inspection systems and optical and video measuring systems.




Since 1958, Vision Engineering has become one of the worlds most innovative and dynamic microscope suppliers.

## For more information...

**For more information, please contact your Vision Engineering branch, local authorized distributor, or visit our website.**



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