Vision ENGINEERING

visioneng.com/mantis

Mantis

Ergonomic stereo microscopes

Superior imaging for a wide range of inspection and re-working tasks

- ✓ Patented optical technology for fatigue-free viewing and superb image quality
- ✓ Wide range of magnification options up to x20
- ✓ Long working distances, large depth of field
- ✓ Shadow-free true colour LED illumination

FM 557119

Vision Engineering Ltd has been certified for the quality management system ISO 9001:2015.

YouTube

Mantis - ergonomic stereo microscopes

Mantis are unique ergonomic high performance stereo microscopes, offering 3D optical imaging with magnification options up to 20x.

Large fields of view and long working distances allow for a wide range of inspection, manipulation and re-working tasks, all with exceptional hand-eye coordination.

Patented optical technology allows operators freedom of head movement for superb ergonomics and hand-eye co-ordination, with the ability to wear glasses if required. All Mantis systems aid with productivity and quality improvements.

Key Features

- ✓ 2x to 20x magnification options
- ✓ Superior ergonomics for improved productivity
- ✓ Quick change turret for flexible magnification
- ✓ Optimised for long working distance & large field of view
- ✓ Bright true colour, LED illumination
- ✓ Optional factory-integrated HD digital camera
- ✓ Inspect and document with ease (Mantis Elite-Cam HD only)
- ✓ Choice of stands and accessories to suit

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.

Patented optical technology allows operators freedom of head movement for superb ergonomics and hand-eye co-ordination, with the ability to wear glasses if required. All Mantis systems aid with productivity and quality improvements.

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

Find out more:
www.visioneng.com/mantis-compact

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.

- ✓ 2x - 20x magnification options with quick change turret allows users to switch between low and high magnification
- ✓ Superb hand-eye co-ordination for inspection and re-working tasks
- ✓ Bright true colour LED illumination provides up to 10,000 hours of shadow-free viewing

Find out more:
www.visioneng.com/mantis-elite

Mantis Elite-Cam HD

Mantis Elite-Cam HD is a variant of the successful Mantis Elite stereo microscope, with an internally integrated USB digital camera, bringing image capture capabilities to the outstanding optical performance of Mantis.

By adding an HD camera to Mantis Elite, Vision Engineering has created a supremely capable inspection solution, providing flexibility and simplicity for any precision magnification task.

- ✓ Quickly and simply add annotations / mark-up to captured images using the ViCapture software supplied
- ✓ Video recording (.avi), ideal for training purposes
- ✓ Optimise camera settings for individual applications, including white balance, gain, contrast, colour channel gain

Find out more:
www.visioneng.com/mantis-elite-cam

Technical details

Optical data

Mantis Compact		
Objective lens	**Working distance**	**Field of view**
2x	167mm	45.0mm
4x	96mm	27.5mm
6x	73mm	19.2mm
8x	58.5mm	14.3mm

Mantis Elite / Elite-Cam HD		
Objective lens	**Working distance**	**Field of view**
2x	160mm	57.0mm
4x	96mm	34.0mm
6x	68mm	23.0mm
6x SLWD*	112mm	20.0mm
8x	59mm	17.0mm
10x	54mm	13.5mm
15x	54mm	8.8mm
20x	29mm	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.

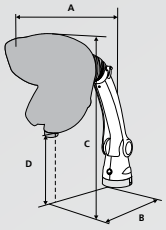
Floor Stand

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

Stand options

Universal Stand



Mantis Compact

Dimensions:
A = 565mm - 775mm
B = 335mm - 545mm
C = 395mm - 605mm
D = 110mm - 320mm

Unpacked weight:
Head 2.1kg Stand 3.3kg

Packed weight:
Head 4.1kg Stand 4.6kg

Mantis Elite

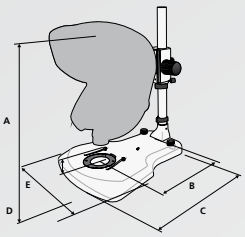
Dimensions:
A = 593mm - 802mm
B = 352mm - 622mm
C = 415mm - 624mm
D = 103mm - 312mm

Unpacked weight:
Head 3.0kg Stand 3.3kg

Packed weight:
Head 5.0kg Stand 4.6kg

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

Bench Stand



Mantis Compact

Dimensions:
A = 475mm - 608mm
B = 300mm
C = 380mm
D = 330mm
E = 256mm max., less working distance

Unpacked weight:
Head 2.1kg Stand 5.0kg

Packed weight:
Head 4.1kg Stand 8.4kg

Mantis Elite

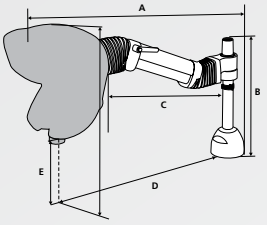
Dimensions:
A = 487mm - 620mm
B = 300mm
C = 380mm
D = 330mm
E = 255mm max., less working distance

Unpacked weight:
Head 3.0kg Stand 5.0kg

Packed weight:
Head 5.0kg Stand 8.4kg

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

Articulated Arm



Mantis Compact

Dimensions:
A = 880mm
B = 430mm
C = 510mm
D = 650mm
E = 290mm

Unpacked weight:
Head 2.1kg Stand 11kg

Packed weight:
Head 4.1kg Stand 13.5kg

Mantis Elite

Dimensions:
A = 880mm
B = 430mm
C = 510mm
D = 650mm
E = 290mm

Unpacked weight:
Head 3.0kg Stand 11kg

Packed weight:
Head 5.0kg Stand 13.5kg

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

*Ask your sales manager for details about alternative stand options

Illumination

Mantis Compact

Lighting Data		
Light intensity measured at subject plane with colour correction filters.		
20 LEDs	9,400 LUX	Up to 10,000 hours
Substage illumination (bench stand only)		
58 LEDs	2,700 LUX	Up to 10,000 hours

Mantis Elite

Lighting Data		
Light intensity measured at subject plane with colour correction filters.		
24 LEDs	11,000 LUX	Up to 10,000 hours
Substage illumination (bench stand only)		
58 LEDs	2,700 LUX	Up to 10,000 hours

Camera

Mantis Elite-Cam HD

Camera Data	
Sensor type	CMOS
Resolution (H x W)	1600 x 1200 pixels
Sensor size	1/3"
Pixel size	2.8µm
Colour depth	8-bit
Refresh rate (fps)	17 fps max.
Interface	USB2.0
File formats	BMP, JPEG, PNG
Power supply	USB powered
Supplied software	ViCapture

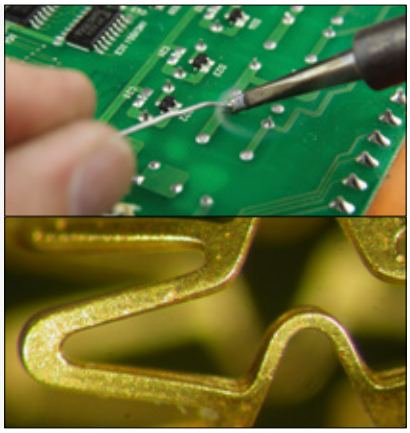
Typical applications*

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.

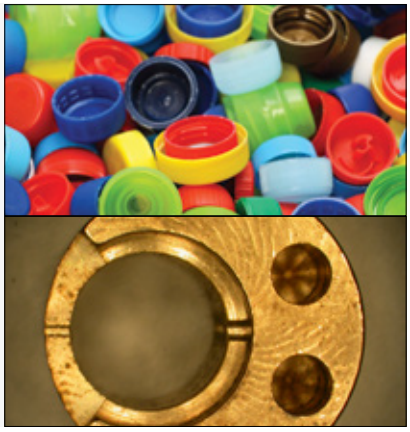


Plastics and rubber

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 utilised 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 minimise errors caused by user fatigue.

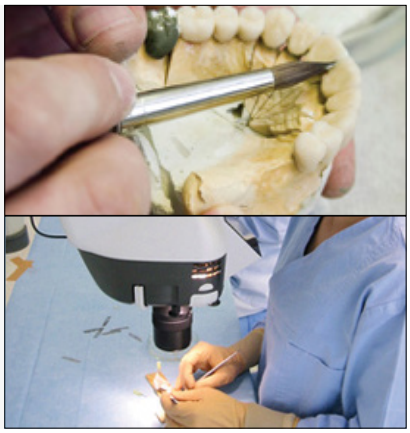


Dental

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

Hair restoration

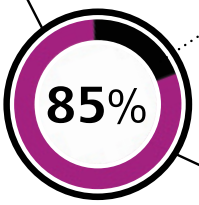
Mantis is a popular solution for use with hair restoration. The detailed and time limited work of splitting hair follicles requires the operator to be able to maintain high levels of concentration and visual accuracy.



*There are many other applications where Mantis is used, including agriculture, education, restoration of antiques, engraving, forensics, and much more...

Improving microscopy ergonomics...

Around 94%
of microscope users
REPORTED VISUAL PROBLEMS[2]
or a combination, of eye discomfort including headache and dry eye. With many subjects complaining of eye fatigue during microscope use.

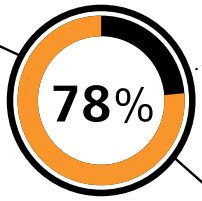


Around 85%
of microscope users
have experienced
MICROSCOPE RELATED PAIN[1]

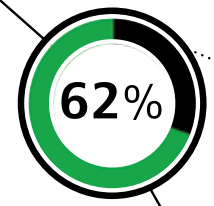
Microscopy can make tough demands on an operator's eyesight and skeletal system.

When operators are uncomfortable or strained, accuracy and performance is compromised.

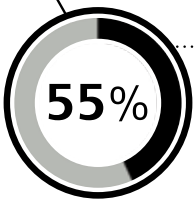
[1] Thompson SK, Mason E, Dukes S. Ergonomics and cytotechnologists: reported musculoskeletal discomfort. Diagn Cytopathol. 2003;29:364–367.
[2] Garima Jain and Pushparaja Shetty Occupational concerns associated with regular use of microscope: International Journal of occupational Medicine and Environmental Health 2014;27(4):591–598
[3] Fritzsche et al.; licensee BioMed Central Ltd. 2012



Around 78%
of microscope operators have suffered from
NECK STRAINS[3]
Slight inclines of the head, such as 30 degrees from vertical, can produce significant muscle contractions, fatigue, and pain.



Around 62%
of microscope operators declared suffering from
MUSCULOSKETLETAL PROBLEMS[2]
Common locations were neck and back. Other problematic areas included shoulder, wrist and hand.



Around 55%
of microscope users
have experienced
FREQUENT HEADACHES[1]

Unrivalled Mantis advantage...

Businesses choose Vision Engineering's ergonomic stereo microscopes because operators are more comfortable during inspection, so 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 minimises 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 that 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.

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

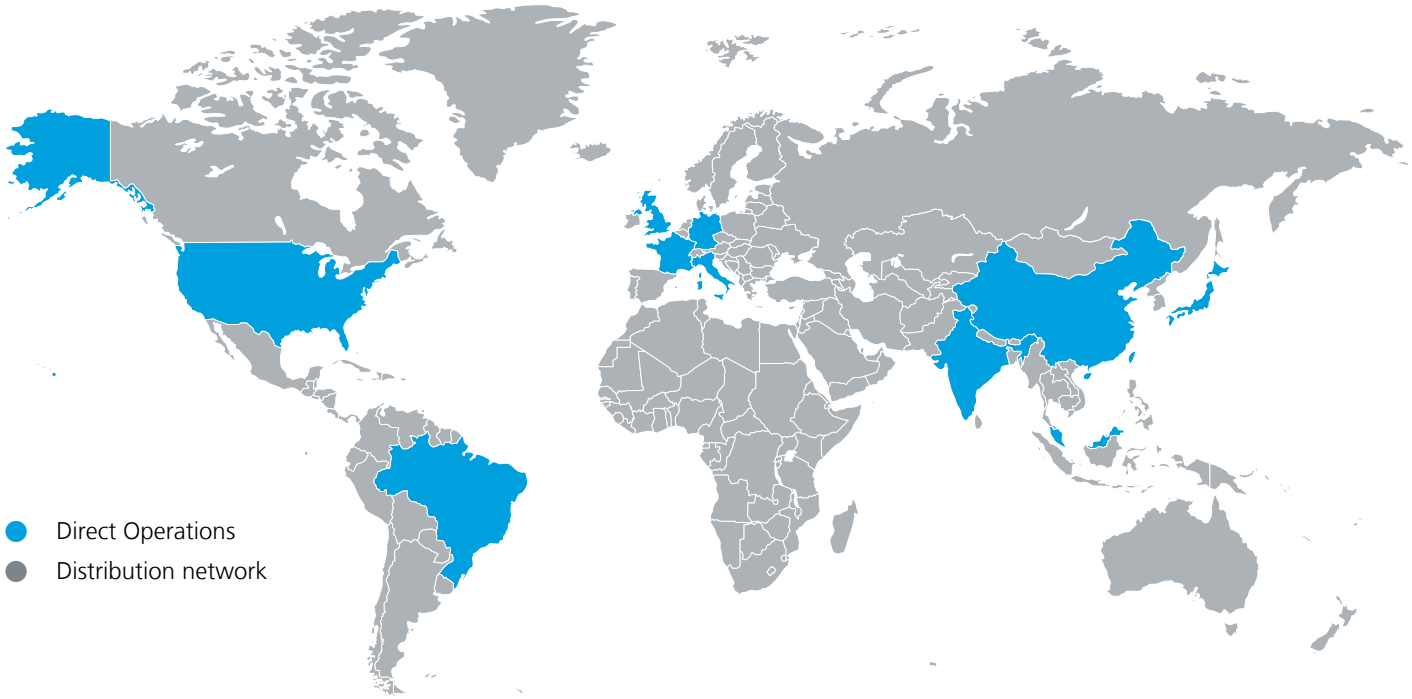
Easy hand-eye co-ordination is possible with the Mantis – critical for re-work, repair, dissection and other manipulation tasks. Sitting back from the viewer provides users with much better peripheral vision, so they can co-ordinate hands in a natural manner.

Ability to wear glasses

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

Read about our patented technology:
www.visioneng.com/ergonomics

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 authorised distributor, or visit our website.

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