



## Non Contact Measuring Microscope for precision measurement & inspection

2-axis non contact measurement, ideal for measuring  
2-D features of small, intricate parts

3-axis variant with Z-axis for height measurement

Patented optical image clearly defines edges, offering superb  
resolution and contrast

High accuracy, low investment system

Choice of rugged and intuitive microprocessor,  
or state of the art touchscreen PC/tablet



FM 584026

Vision Engineering Inc. has been  
certificated for the quality  
management system ISO 9001:2008.

# Toolmakers' Measuring Microscope

Kestrel Elite is a rugged, high accuracy measuring microscope, ideally suited for shop floor production use, providing simple and accurate measurement of precision component parts.

Kestrel Elite is a high accuracy, low investment system, designed to transform your measurement and inspection capabilities. From simple single feature operation, to more complex component part measurement, Kestrel Elite combines high resolution, high contrast images with intuitive microprocessors to deliver accuracy and simplicity for a wide range of measuring applications.

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High accuracy, low investment system

High performance stand, optimized for accurate measurements

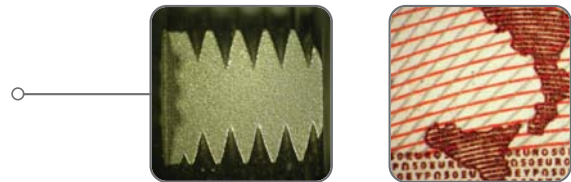
Choice of rugged and intuitive microprocessor, ideal for shop floor use, or state of the art touch-screen PC/tablet

High resolution video measurement variant, for higher throughput measurements

## Upgrade your measurement and inspection capabilities

### See It – Measure It

Small, intricate parts, even difficult to view samples, such as black or white parts, or transparent plastics can be viewed in microscope resolution detail through Kestrel Elite's patented optical viewing head, making accurate measurement easy. The superb optical clarity also allows detailed visual inspection to be performed simultaneously.



### Patented Dynascope™ Eyepieceless Technology

Kestrel Elite utilizes Vision Engineering's patented Dynascope™ optical projection technology. Dynascope™ technology removes the need for conventional microscope eyepieces, offering the user a superior image of the subject.

Black on black? White on white? Transparent subjects? Difficult to view features may all be viewed in intricate detail – something not possible with other measuring devices such as profile projectors or video based systems – making it easy to take accurate measurements.



Kestrel Elite with rugged microprocessor illustrated. Touchscreen PC/tablet software option available.

# 5 reasons to choose Kestrel Elite

## Small footprint, big impact

Kestrel Elite is the perfect starting point to upgrade your measurement and inspection capabilities and improve your quality control routines. With space at a premium, Kestrel Elite doesn't take up much room, yet can make a big difference to your production quality.

## Simple. Rugged. Precise.

Kestrel Elite's robust, dynamically engineered design reduces stress points to optimize measurement accuracy. Rugged in construction, the unit has been designed to cope with the demands of a busy production environment and includes Vision Engineering's proven 150mm x 100mm precision measuring stage.

The stage comes complete with factory set Non Linear Error Correction (NLEC) calibration to ensure optimum accuracy, traceable to international standards for the purposes of ISO9000.

## Multiplane measurements

Many users need to measure in X and Y axis, but at different heights. Kestrel Elite employs a high stability stand with a precision engineered bearing assembly to optimize X, Y measurements at different plane heights.

## Patented optical imaging

Kestrel Elite is a true optical measuring microscope. Unprocessed, high resolution, true color images are viewed through the ergonomic eyepieceless viewing head in complete comfort. No uncomfortable microscope eyepieces!

## Dual optical and video measurement variant

Two measurement systems in one! As a member of the same product family, Swift-Duo integrates both video and optical measurement capabilities into one system, so whatever component you are measuring, you can select the best measurement technology for the job.

Optical measurement for critical, or one off measurements, or difficult to view features

Video measurement for routine measurement of high contrast parts

[Find out more »](#)

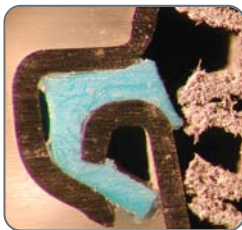
[www.visioneng.us/swiftduo](http://www.visioneng.us/swiftduo)



Kestrel Elite with touchscreen PC illustrated.

Tablet option available.

## See it – Measure it



Vision Engineering holds world patents for a number of techniques designed to optimize optical and ergonomic performance.

Kestrel Elite's patented Dynascope™ technology enables you to view intricate and low contrast objects with confidence. Thus, increasing measurement accuracy and productivity while reducing costs.

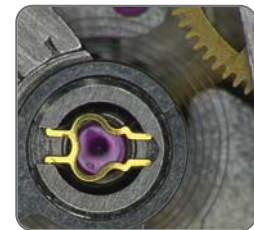
## Microscope resolution images



Kestrel Elite is a true optical microscope. Unprocessed, high resolution, true color optical images are viewed through the ergonomic eyepieceless viewing head.

Light passes through the patented Dynascope™ optics, exiting the single viewing lens as twin (mono) light paths. The large diameter of these exit rays means that users do not need to precisely align their eyes with the viewing lens in order to see the subject.

## Range of applications



Customers around the world use Vision Engineering measuring systems for a wide range of non contact measurement applications, including:

Plastic parts (e.g. connectors, tubing, molding), medical device implants (e.g. stents, hearing aids), machined parts for aerospace, automotive and military use, general precision engineering, watchmaking, plus many more applications.

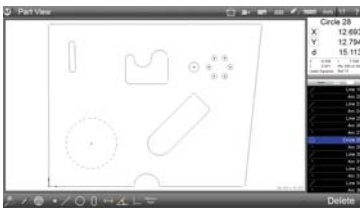
# Data processing and reporting

Choice of robust microprocessor, specifically designed for use on the shop floor, or touchscreen PC/tablet with 'next generation' measurement software.

## Touchscreen PC/tablet

The touchscreen PC/tablet combines the power of 'next generation' measurement software with enhanced networking and reporting capabilities.

With simplicity at its core, the intuitive software can be used by shift workers or advanced users alike, simplifying complex work steps, with advanced features as standard.



Graphics based "part view" constructions: Generate popular construction types, like distances and tangent lines, from within the graphical part view itself.

### Key Features

Windows 7 - Full PC functionality allows simple integration with network printers and Windows applications such as Microsoft Excel (not included).

Part view measurement - measurements can be taken from one measured feature to the next.

Touchscreen functionality - for quick measurement, with a simple touch of the screen.

### Reporting

Flexible reporting capability supports a range of application requirements, from simple to advanced. Custom report headers, footers, and print out graphics can all be included as part of easily generated program playback routines, or simply printed, or exported as data files.



## Robust microprocessor

A durable microprocessor, ideal for shop floor use, reduces operator error while minimizing training time.

### Key Features

Durability - Robust outer casing allows for the microprocessor to be used on the shop floor

Ease of use - Simplicity of operation reduces operator error and increases productivity. Ideal for multiple users

Quick, accurate 3-axis measurement - Provides essential functionality, delivering clear and simple measurement results.

### Intuitive User Interface

A consistent, intuitive interface ensures operator accuracy and reduces training time.

### Languages

Standard installed languages include English, French, German, Italian, Portuguese, Spanish, Swedish, Czech, Polish, Turkish, Chinese and Japanese.



## Product Family



### Kestrel Elite

Optical measuring microscope  
[Find out more >](http://www.visioneng.us/kestrelite)  
[www.visioneng.us/kestrelite](http://www.visioneng.us/kestrelite)



### Swift

Video measuring system  
[Find out more >](http://www.visioneng.us/swift)  
[www.visioneng.us/swift](http://www.visioneng.us/swift)



### Swift-Duo

Dual video and optical measuring system  
[Find out more >](http://www.visioneng.us/swiftduo)  
[www.visioneng.us/swiftduo](http://www.visioneng.us/swiftduo)

## Technical details

### Measurement Uncertainty

(X, Y) Uncertainty formula  $U_{95}2D = 7 + (6.5L/1000)\mu\text{m}$ , where L = length in mm, using controlled conditions with 100x magnification at the standard measuring plane.

Increased accuracies may be obtained over shorter measuring lengths.

(Z) Z-axis accuracy 10 $\mu\text{m}$ , using controlled conditions with 100x magnification\*

### Optics

Patented twin pupil monoscopic, infinity corrected optical system, with pre-centered crossline reticle to both eyes.

Option of custom designed reticle, pre-centered to one eye.

### Magnification Options (System Total)

Quick change magnification options - 10x, 20x, 50x, 100x

### Measuring Stage

Precision measuring stage, with factory set Non Linear Error Correction (NLEC) calibration as standard.

### Measuring Range

(X, Y) 5.91" x 3.94" (150mm x 100mm), 22.04 lbs maximum load (10kg)

(Z) 3.86" (98mm)\*

### Height adjustment

3.94" (100mm) of height adjustment.

### Encoder Resolution

X = 1 $\mu\text{m}$  Y = 1 $\mu\text{m}$  Z = 1 $\mu\text{m}$ \*

### Illumination

Choice of twin semi-coaxial spot lamps, or cool, corrected color temperature LED surface illumination.

Surface and substage illumination options enable adjustment of lighting to suit any application.

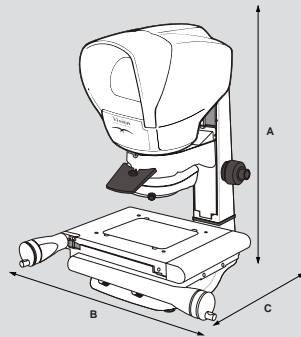
Substage illumination provides the ability to measure in profile.

### Dimensions

A = 26.77" max. (680 mm max.)

B = 16.93" (430 mm)

C = 18.90" (480 mm)



### Weights

Unpacked

Head 8.82 lbs (4kg)

Stage 23.15 lbs (10.5kg)

Stand 13.23 lbs (6kg)



Precision manufactured in the EU.

\*3-axis variant only.

## Quality, calibration & support

### Worldwide training, service & support

Vision Engineering has a network of international offices throughout North America, Europe and Asia, supported by fully trained distributor partners. Full user training, application development, service, calibration and support is available, ensuring the highest levels of accuracy and productivity are maintained. A dedicated applications development facility is also available to help solve technical or application inquiries.

Systems can be serviced at your premises or returned to a Vision Engineering main service center.

### Measuring stage calibration, with NLEC

Measuring stages of all types will naturally display minute mechanical differences due to normal variations in component and manufacturing tolerances. Non Linear Error Correction (NLEC) is the most accurate correction method available and uses a software algorithm to calculate and correct any errors across the measuring stage. All measuring stages are factory set with NLEC prior to installation.

The NLEC algorithm can be periodically recalibrated to ensure conformity with any required quality standards, plus ensure the highest possible levels of accuracy are maintained.

### Traceability to international standards

Vision Engineering's measuring stage calibrations are internationally traceable to National Measurement Standards (NMS) through the Mutual Recognition Agreement (MRA), ensuring full compliance with quality standards, including ISO9000.



# About Vision Engineering

## Vision Engineering

Vision Engineering Inc. has built a reputation of innovative design, excellent optical technology and ergonomically advanced products. Vision Engineering's family of non-contact measurement systems represent the very best in industry proven solutions and leading edge technologies.

## ISO 9001:2008

Vision Engineering Inc. is certified for the quality management system ISO 9001:2008.

## Company Profile

Vision Engineering was founded in 1958 by Rob Freeman, a toolmaker who had previously worked as a race mechanic with the Jaguar Racing Team. Since its formation, Vision Engineering has become one of the world's most innovative and dynamic optical system manufacturers, with offices across Europe, Asia and North America.

Engineers and scientists worldwide use our systems for a wide range of general magnification, inspection and measurement applications in both industrial and life science markets.

## Research and Technology

Vision Engineering holds world patents for a number of optical techniques which remove the need for conventional binocular microscope eyepieces. Dynascope™ image projection technology is employed in Kestrel Elite non-contact measuring systems and offer users advanced ergonomics, superb optical clarity and reduced eyestrain leading to improved accuracy and productivity. Vision Engineering continues to lead the way in optical and metrology innovation, with ongoing research and development programmes.



Swift Duo 'dual' optical and video measuring system.



Falcon 3-axis video measuring machine.

# Other solutions

## Measurement solutions

Measurement applications vary greatly. This is reflected in the wide range of measurement solutions provided by Vision Engineering.

Vision Engineering manufacture a range of non-contact measuring systems, including 'workshop' measuring microscopes, dual optical and video measuring systems, plus the latest field of view *instant* measurement systems.

*To discuss your application or specific requirement, why not contact us?*

## On-screen dimensioning

As well as a full range of non-contact measurement solutions, Vision Engineering also has a suite of inspection systems and software solutions, designed for simple on-screen dimensioning.

## Inspection solutions

Vision Engineering also manufacture a full range of ergonomic stereo inspection microscopes, including the acclaimed Mantis and Lynx eyepieceless microscopes.

*To find out more, visit:*  
[www.visioneng.us/ergonomic](http://www.visioneng.us/ergonomic)



Xpress 'field of view' video measuring system.



DimensionOne™ mark-up and dimensioning software.



Mantis eyepieceless stereo inspection microscope.

[View the full range at www.visioneng.us](http://www.visioneng.us)

## For more information...

Vision Engineering has a network of offices and technical distributors around the world. For more information, please contact your Vision Engineering branch, local authorized distributor, or visit our website.

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