



## Non-Contact Measuring Microscope

for precision measurement & inspection

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



FM 557119

Vision Engineering Ltd has been certified for the quality management system ISO 9001:2008.

# 2-Axis Non-Contact 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.

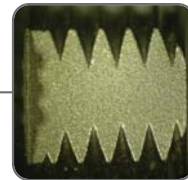
Kestrel Elite is a high accuracy, low investment system, designed to transform your measurement and inspection capabilities. From simple single-feature operation, to more complex component part measurement, Kestrel Elite combines high resolution, high contrast images with intuitive microprocessors to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

## 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.

- 2-axis non-contact measurement, ideal for measuring 2-D features of small, intricate parts
- Patented optical image clearly defines edges, offering superb resolution and contrast
- High accuracy, low investment system
- High performance stand, optimised for accurate measurements
- Choice of rugged and intuitive microprocessor, ideal for shop-floor use, or state-of-the-art touch-screen tablet PC
- High resolution video measurement variant, for higher throughput measurements



### Patented Dynascope™ Eyepieceless Technology

Kestrel Elite utilises 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.  
Touch-screen tablet PC 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... on a budget. 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 optimise 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.

## Multi-plane 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 optimise X,Y measurements at different plane heights.

## Patented optical imaging

Kestrel Elite is a true optical measuring microscope. Unprocessed, high resolution, true-colour 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

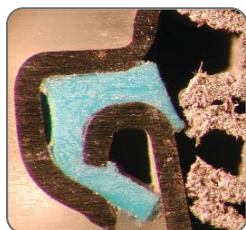
[Find out more »](#)

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



Kestrel Elite with touch-screen tablet PC illustrated.  
Touch-screen PC option available.

## See it – Measure it ...



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

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

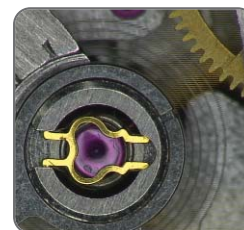
## Microscope-resolution images



Kestrel Elite is a true optical microscope. Unprocessed, high resolution, true-colour 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, moulding), medical device implants (e.g. stents, hearing aids), machined parts for aerospace, automotive and military use, general precision engineering, watchmaking, plus many more applications ...

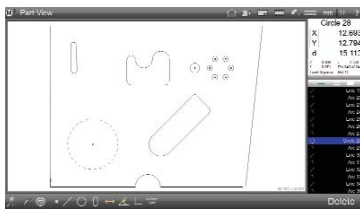
# Data processing and reporting

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

## Touch-screen tablet PC

The touch-screen tablet PC 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.

**Touch-screen 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 programme playback routines, or simply printed, or exported as data files.



## Robust microprocessor

A durable microprocessor offers rugged simplicity, ideal for shop floor use, reducing operator error, whilst minimising 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, while minimising training time. Ideal for multiple users
- **Quick, accurate 2-axis measurement** - Provides essential functionality, delivering clear and simple measurement results.

## Intuitive User Interface

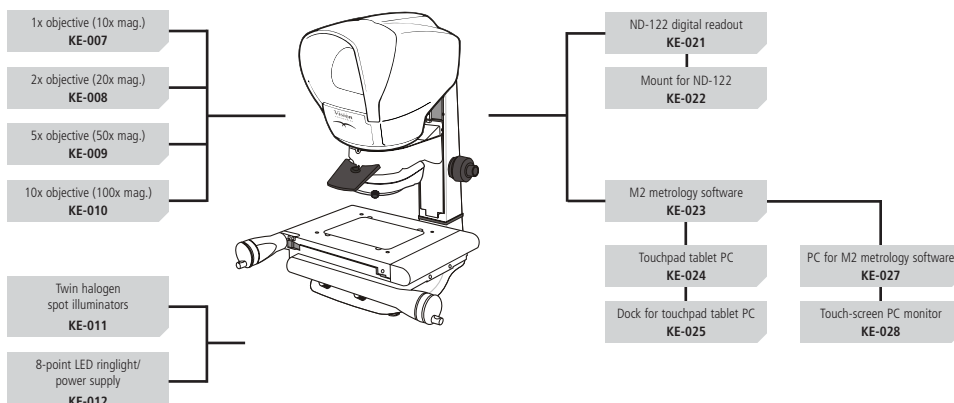
A consistent, intuitive interface ensures operator accuracy and reduces training time.

## Languages

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



## System Diagram



## Product Family



### Kestrel Elite

2-axis optical measuring microscope  
[Find out more »](http://www.visioneng.com/kestrelite)  
[www.visioneng.com/kestrelite](http://www.visioneng.com/kestrelite)



### Swift

2-axis video measuring system  
[Find out more »](http://www.visioneng.com/swift)  
[www.visioneng.com/swift](http://www.visioneng.com/swift)



### Swift-Duo

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

# Technical details

## Measurement Uncertainty

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.

## Optics

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

- Option of custom designed graticule, pre-centred 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)

- 150mm x 100mm (10kg maximum load)

## Height adjustment

100mm of height adjustment.

## Encoder Resolution

X = 1µm Y = 1µm

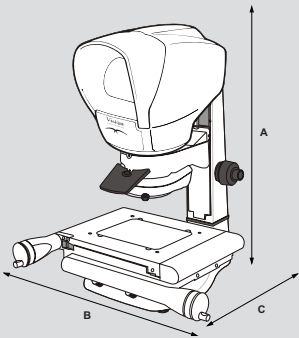
## Illumination

Choice of twin semi-coaxial spot lamps, or cool, corrected colour 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 = 680mm max.  
B = 430mm  
C = 480mm



## Weights

	Unpacked
Head	4kg
Stage	10.5kg
Stand	6kg



Precision manufactured in the EU.

# Quality, calibration & support

## Worldwide training, service & support

Vision Engineering has a network of international offices throughout Europe, Asia and North America, 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 problem-solve technical or application queries.

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

## 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 re-calibrated 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.



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Vision Engineering manufacture a comprehensive range of ergonomic stereo microscopes as well as a complete line of optical and video non-contact measuring systems.

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

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