Vision ENGINEERING

SWIFT

SWIFT-DUO

Video Measuring Systems

for precision measurement & inspection

- 2-axis video measuring systems, ideal for measuring 2-D features of small, intricate parts
- Option of combined video *and* microscope measurement technologies
  - Seamlessly switch between video and microscope measurement
  - Patented optical ergonomic microscope offers high resolution visual inspection
- Low capital investment, high accuracy measurement systems

BSI UKAS QUALITY MANAGEMENT 003

FM 557119

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

Video Measuring System

Swift is one of the most intuitive, easy to use video measuring systems available. Designed as a powerful, yet simple video measuring system, Swift provides fast and accurate measurement of both routine and complex precision component parts, suitable for shop-floor and manufacturing inspection applications.

Simple, compact, accurate

With a precision 150mm x 100mm measuring stage and a high resolution video camera, Swift is ideal for measuring 2-D features of small, intricate parts, quickly and simply.

With simplicity at its core, 'touch-to-measure' software can be used by shift workers or advanced users alike, simplifying work steps, reducing operator error, while minimising training requirements. An array of video edge detection tools ensures accurate, repeatable results, no matter how many operators use the system.

Featuring touch2measure technology

Swift features 'next generation' multi-touch measurement software, featuring 'touch-to-measure' technology, making Swift exceptionally intuitive, easy to operate and easy to learn.

'*Touch-to-measure*' means that in addition to conventional mouse control, you can 'pinch' to zoom, 'swipe' to pan across an image and 'touch' to take a measurement. You can even trace your finger around a complex shape to 'see' the feature.

Icon-based touch-screen control provides users with *smartphone* familiarity, displaying graphic-rich measurement data to visually guide you through the measurement process, with a Windows 7-based operating system allows for simple integration with applications such as Microsoft Excel (not included), or connection to network printers etc.

Small footprint, big impact

Swift 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, Swift doesn't take up much room, yet can make a big difference to your production quality. Rugged in construction, the unit has been designed to cope with the demands of a busy production environment.

- ✓ Low capital investment, high accuracy measurement system
- ✓ Next generation 'touch-to-measure' measurement software
- ✓ Modular construction allows future upgrade option of combined video *and* microscope measurement technologies

Precision measuring stage

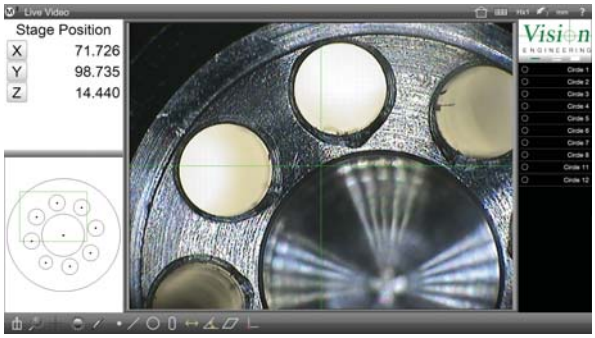
Swift includes Vision Engineering's proven 150mm x 100mm precision measuring stage. The stage comes complete with factory-set Non-Linear Error Correction (NLEC) calibration to ensure optimum accuracy, traceable to international standards for the purposes of ISO9000.

Multi-plane measurements

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

Data processing & reporting

'Next generation' measurement software coupled with a high resolution video camera enables Swift to measure a wide variety of simple and complex features, quickly and simply.



Essential measurement data, with graphics-based "part view" construction displayed alongside high resolution video image. Generate popular construction types from within the graphical part view itself.

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.

Modular construction for future upgrade

Swift becomes Swift-Duo!

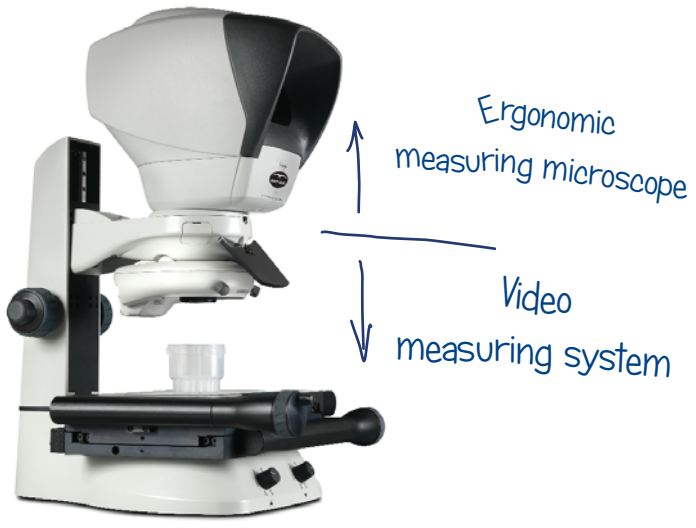
Difficult-to-view components? No problem. Modular design means that you can easily add microscope measurement capabilities at a later date, allowing you to view and measure even low contrast black, white or transparent parts. A high resolution ergonomic measuring microscope simply integrates with your existing Swift. **Swift becomes Swift-Duo!**

No need to switch systems. Both video and optical measurements occur seamlessly, in the same routine, without any delays.

Two measurement systems in one!

Difficult-to-view samples are viewed in microscope-resolution detail through the patented ergonomic viewing head, making accurate measurement easy. The superb optical clarity also allows detailed visual inspection to be performed simultaneously.

Compact, simple, accurate.
Swift provides cost-effective 2-axis video measurement.



Swift becomes Swift-Duo!
Modular design means you can easily add optical measurement capabilities at a later date.

SWIFT-DUO

Dual Video & Optical Measuring System

Two measurement systems in one!

Swift-Duo is the only video measuring system to incorporate an ergonomic measuring microscope. Previously difficult-to-view samples can now be measured and inspected on the same system, in the same routine, by the same operator.

- 2-axis dual video and optical measuring system, ideal for measuring 2-D features of small, intricate parts
- Combined video *and* microscope measurement technologies
  - Seamlessly switch between video and microscope measurement
  - Patented optical ergonomic microscope offers high resolution surface inspection
- Next generation 'touch-to-measure' measurement software
- Low capital investment, high accuracy measurement system

Measure all your components, *not just the easy ones*.

Designed as a powerful, yet simple video measuring system, Swift-Duo provides fast and accurate measurement of both routine and complex precision component parts, suitable for shop-floor and manufacturing inspection applications.

By integrating a high resolution ergonomic measuring microscope with Swift, Vision Engineering has created Swift-Duo, a video measuring system capable of measuring all your precision components, **not just the easy ones!** No need to switch systems. Both video and optical measurements occur seamlessly, in the same routine, without any delays.

'Next generation' measurement software

Swift-Duo features 'next generation' multi-touch measurement software, with 'touch-to-measure' technology, making Swift-Duo exceptionally intuitive, easy to operate and easy to learn. The intuitive 'touch-to-measure' software can be used by shift workers or advanced users alike, simplifying work steps, reducing operator error, while minimising training requirements.

Swift-Duo. Why video *and* optical measurement?

Dual video and optical measurement technologies provide the best of both worlds, so whatever component you are measuring, you can be sure you have the best tools for the job, in a single system, without any hold-ups.

Video measurement

Video measurement is ideal for routine components where edges of features can easily be identified. 'Next generation' measurement software coupled with a high resolution video camera enables Swift-Duo to measure a wide variety of simple and complex features, quickly and simply.

However components come in all shapes, colours, and textures, so with Swift-Duo, you can choose the ideal technology for the measured feature, seamlessly switching from video measurement to optical measurement in the same routine, without delay, ensuring you have the best measurement tool available all the time.

Optical measurement

In order to take an accurate measurement, you need to clearly identify the edge of the feature being measured. Swift-Duo incorporates a patented eyepieceless measuring microscope, providing high contrast, microscope-resolution image of your components. Complex, or difficult-to-view features can be viewed in intricate detail, ensuring you can take accurate measurement of all you components, not just the easy ones! The superb microscope image also allows for high resolution visual inspection.

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Precision measuring stage

Swift-Duo 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. Swift-Duo employs a high stability stand with a precision engineered bearing assembly to optimise X,Y measurements at different plane heights.

Construction and ergonomics

Rugged in construction, the unit has been designed to cope with the demands of a busy production environment. All controls are ergonomically positioned to reduce head, hand and body movement and resulting fatigue.

Technical details

Measurement Uncertainty

Uncertainty formula $U_{95}2D = 7+(6.5L/1000)\mu m$, 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.

Video Camera

High resolution colour CCD video camera

Optics (Swift-Duo only)

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

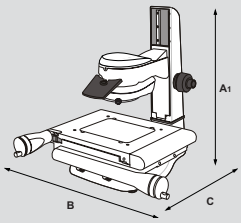
Illumination

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

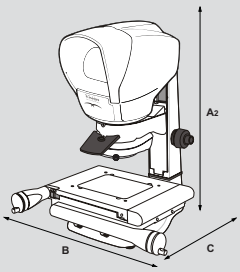
- Surface and substage illumination options enable adjustment of lighting to suit any application.
- Substage illumination provides the ability to measure in profile.

Dimensions

A_1 = 450mm
B = 430mm
C = 480mm



A_2 = 680mm max.



Weights Unpacked

Optical head (Swift-Duo only)	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

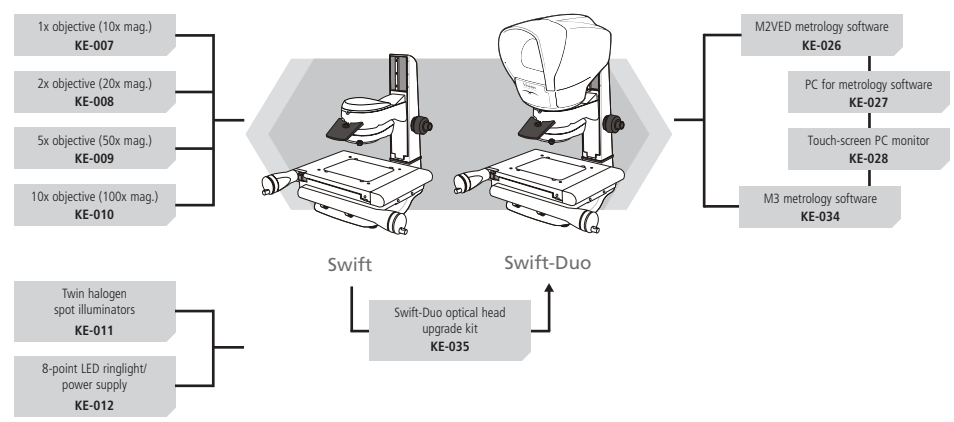
Measuring stages of all types will naturally display minute mechanical differences due to normal variations in component and manufacturing tolerances. Non-Linear Error Correction (NLEC) is the most accurate correction method available and uses a software algorithm to calculate and correct any errors 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.

System Diagram



Product Family

Kestrel Elite

2-axis optical measuring microscope
Find out more »
www.visioneng.com/kestrelelite

Swift

2-axis video measuring system
Find out more »
www.visioneng.com/swift

Swift-Duo

Dual video and optical measuring system
Find out more »
www.visioneng.com/swiftduo