



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
- 3-axis variant with Z-axis for height measurement
- 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



FM 584026

Vision Engineering Inc. has been certified 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. The system is 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 minimizing 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. The Windows 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. 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 handle 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

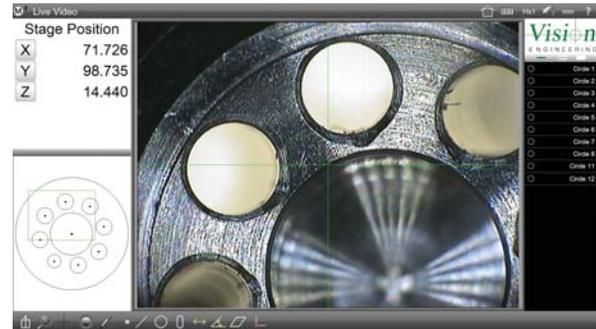
Swift includes Vision Engineering's proven 150mm x 100mm precision measuring stage. The stage comes complete with factory set Non Linear Error Correction (NLEC) calibration to ensure optimum accuracy, traceable to international standards for the purposes of ISO9000.

Multiplane 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 optimize 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 program 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.

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
- 3-axis variant with Z-axis for height measurement
- 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.

'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 minimizing training requirements.

Ergonomic
measuring microscope

Video
measuring system



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.

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.

Components come in all shapes, colors, 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 your components, not just the easy ones! The superb microscope image also allows for high resolution visual inspection.

Featuring **touch2measure**  technology

Swift Duo's 'next generation' multi touch software, features 'touch to measure' technology, making Swift-Duo 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. The Windows operating system allows for simple integration with applications such as Microsoft Excel (not included), connection to network printers, etc.

Two measurement systems in one!



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.

Multiplane measurements

Many users need to measure in X and Y axis, but at different heights. Swift-Duo employs a high stability stand with a precisely engineered bearing assembly to optimize 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

(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 μm , using controlled conditions with 100x magnification*

Video Camera

High resolution color CCD video camera

Optics (Swift-Duo only)

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 μm **Y** = 1 μm **Z** = 1 μm *

Illumination

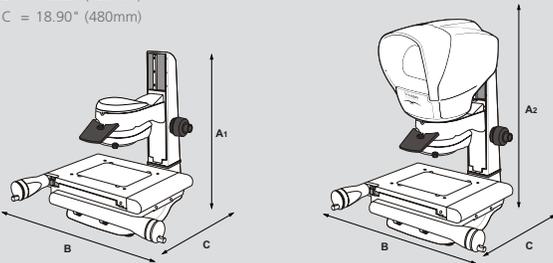
Choice of twin semi-coaxial spot lamps, or cool, corrected color temperature LED surface illumination.

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

Dimensions

A₁ = 17.72" (450mm)
B = 16.93" (430mm)
C = 18.90" (480mm)

A₂ = 26.77" max. (680mm max.)



Weights

Unpacked

Optical head (Swift-Duo only)	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.



Product Family



Kestrel Elite

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



Swift

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

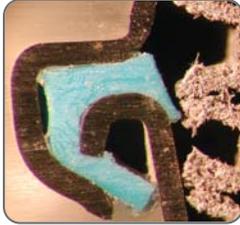


Swift-Duo

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

Patented Dynascope™ Eyepieceless Technology

See it – Measure it



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

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

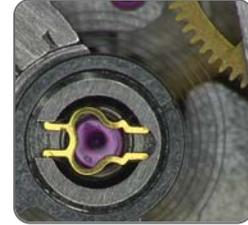
Microscope resolution images



Dynascope™ technology offers the user a superior image of the subject. Unprocessed, high resolution, true color optical images are viewed through an 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.



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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