Mitutoyo

VISION MEASURING MACHINES

PRECISION AND QUALITY FIRMLY IN FOCUS:

QUICK IMAGE, QUICK SCOPE AND QUICK VISION.

VISION MEASURING SYSTEMS

PRE 1170(8)

Mitutoyo

QUICK IMAGE, QUICK SCOPE and QUICK VISION: Focusing on the essentials.

VISION MEASURING MACHINES

On the production line, in the quality control room or the laboratory, Mitutoyo offers innovative solutions for all your optical measurement requirements using state-of-the-art image processing technology. Even the most demanding customers will find an off-the-shelf instrument that suits their needs, or one that can be customised to do the job, in a range extending from high-economy compact desktop instrument through to the high-precision reference model.

This brochure gives you a summary of Mitutoyo's versatile range of vision measuring machines and points you straight to the perfect device or system for your individual measuring tasks. In this brochure you will find all the essential facts on device specifications, configurations, add-ons and software.

This quick, sure and efficient guide will help you to find the system you need. More detailed individual product brochures will then give you further information on the system of your choice.

Whatever machine you choose, with vision measurement technology from Mitutoyo, you can be sure of the experience, competence and performance of one of the world's leading measurement technology specialist and customer-oriented service without comparison.

Mitutoyo: Right in the picture when it comes to precision


QV-objective 1x
∞ / 0
X 138.1695
Y 182.8835
Z 0.6117

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Vision Measuring Systems by Mitutoyo: A full range for quality and precision.

QUICK IMAGE
2-D vision system

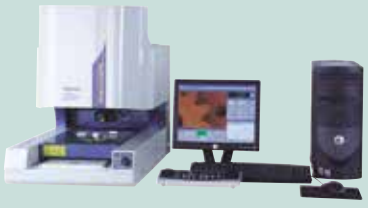
With such a large range of focal depth, workpieces of varying thicknesses or stepped surfaces can be measured simply and without refocusing. Complete capture of small parts in a single view – for quick, easy, automated measurement. Offering convenient, repeatable and programmable measuring sequences, QUICK IMAGE provides you the best solution for fast evaluation of 2-D parts.

QUICK IMAGE-QI-A1010

QUICK SCOPE
Measuring microscopes with vision

Manual and CNC operated vision measuring systems for reliable non-contact precision measurement of parts and surfaces and vision profile testing. Deploying high-resolution colour CCD cameras for detailed image acquisition QUICK SCOPE performs complex, automatic measurements on batches of workpieces, or individual parts, with more measuring and analysis capability than any traditional microscope system.

QUICK SCOPE manual QS-L 2010 ZB



QUICK SCOPE CNC QS 250 Z

QUICK VISION
Coordinate measuring machines with vision

Powerful CNC-operated systems for intelligent, easy and fully-automatic measurement. Offering a variety of filtering functions for reliable measurements, normal and oblique illumination systems, degrees of accuracy and ranges of measurement all the way through to the flexible QVBasic programming language. QUICK VISION is your ideal visual measuring system for precision work.

QUICK VISION ELF 202 PRO

Model	Accuracy	Specific characteristics	Measuring range X : Y : Z
QUICK IMAGE-A	5 µm	2-D image processing measuring system with large visible area and enhanced depth of field	100 : 100 mm 200 : 100 mm 200 : 170 mm 300 : 170 mm 400 : 200 mm
QUICK IMAGE-B	5 µm	2-D image processing measuring system with large depth of field and enhanced accuracy	
QUICK SCOPE manual	2.5 µm	Manual device with powerzoom with or without CNC autofocus.	200 : 100 : 150 mm 300 : 170 : 150 mm 400 : 200 : 150 mm 200 : 250 : 100 mm
QUICK SCOPE CNC	2.5 µm	CNC-device with powerzoom.	
QUICK VISION ELF	2.0 µm	Compact and economical devices for the economical measurement of medium-sized workpieces.	250 : 200 : 200 mm
QUICK VISION APEX **QUICK VISION HYPER** **QUICK VISION STREAM PLUS**	1.5 µm 0.8 µm 1.5 µm	Floor-standing models with four-colour LED, coaxial and ring lights to meet the highest demands in image-processing measurements. Particularly suited to economically measuring large workpieces either in production or a controlled environment. The HYBRID models are fitted with a laser scanning system for 3-D surface evaluation.	300 : 200 : 200 mm 400 : 400 : 250 mm 600 : 650 : 250 mm
QUICK VISION ACCEL	1.5 µm	Floor-standing models with stationary measuring table and moving bridge in all three axis for rapid traverse speed and high acceleration.This configuration drastically reduces measurement time required for large workpieces by eliminating the need for clamping. The HYBRID models are fitted with a laser scanning system for 3-D surface evaluation.	800 : 800 : 150 mm 1000 : 1000 : 100 mm 1250 : 1250 : 100 mm 1500 : 1750 : 100 mm
QUICK VISION APEX TP **QUICK VISION HYPER TP**	1.5 µm 0.8 µm	Combining image processing and contact measurements turns the QUICK VISION APEX/HYPER TP into a versatile, multi-sensor measurement system.	300 : 200 : 200 mm 400 : 400 : 250 mm 400 : 400 : 250 mm
QUICK VISION WLI	0.8 µm	By combining an image processing system with a White Light Interferometer sensor, the QUICK VISION WLI becomes a powerful measuring system for detailed 3-D topography analyses with highest accuracy on large workpieces or batches of workpieces.	400 : 400 : 240 mm 600 : 650 : 240 mm
QUICK VISION ULTRA	0.25 µm	Maximum precision, premium system with air-bearings on all axis for maximum accuracy.	400 : 400 : 200 mm

QUICK VISION HYPER 404 PRO

QUICK VISION STREAM PLUS 606 PRO

QUICK VISION ULTRA 404 PRO

QUICK IMAGE-Series
Expanded capabilities.

The QUICK IMAGE-series expands the capability of profile projectors with a vision system

Accuracy:
5 µm

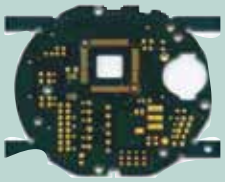
Model	Measuring range (mm) X : Y	Infeed range Z
QUICK IMAGE		
QI-A1010B **QI-B1010B**	100 : 100	100
QI-A2010B **QI-B2010B**	200 : 100	100
QI-A2017B **QI-B2017B**	200 : 170	100
QI-A3017B **QI-B3017B**	300 : 170	100
QI-A4020B **QI-B4020B**	400 : 200	100

- Wide measuring ranges up to 400 x 200 mm
- Large visible area: 32 x 24 mm (QI-A) or 12.8 x 9.6 mm (QI-B)
- Rapid, complex on-screen evaluations in a single click
- View comparisons with CAD data as templates in defined and calibrated scale.
- Image archiving with and without tools or templates.
- Bipolar telecentric lens with 0.2X (QI-A) resp. 0.5X magnification (QI-B)

Model	QI-A Series	QI-B Series
Measurment accuracy within video window	± 5 µm (high resolution mode) ± 8 µm (normal mode, extended depth of focus)	± 2.7 µm (high resolution mode) ± 4 µm (normal mode, extended depth of focus)
Repeatability within video window (±2σ)	± 1 µm (high resolution mode) ± 2 µm (normal mode, extended depth of focus)	± 0.7 µm (hochauflösender Modus) ± 1 µm (normal mode, extended depth of focus)
U1 accuracy of X- and Y- axis	± (5 + 0.08L) µm L: arbitrary measuring length	

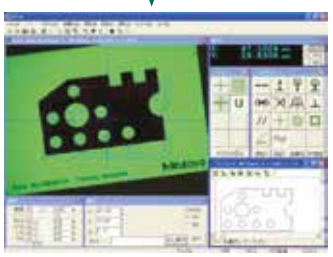
View comparison with nominal profile form from CAD data

- (in defined and calibrated scale)

Workpiece designation	Workpiece
Printed circuit board	
Measurement task	
9 bores	
2 pitch measurements	
Comparison device	
Profile projector	No. of measurement positions required: 4

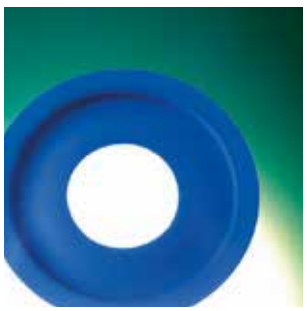
Measurement time required		
	Average measurement time	Measurement time for 10 workpieces
QUICK IMAGE	0.9 min	8.9 min
Profile projector	4.4 min	43.3 min
Time saved (%)	80%	82%

View comparison using the profile projector (drawing as a template)



QIPAK – view comparison using transposed template from CAD data (CAD import option required)

QI-SERIES



QUICK SCOPE-Series
The economical solution.

MANUAL

QUICK SCOPE manual:
Compact, economical desktop device for easy manual measurement of details

Accuracy:
2.5 µm

- High performance to cost ratio
- Measurement table movements in the X- and Y-axes with convenient rapid adjustment
- 3 different sizes (200 x 100, 300 x 170, 400 x 200 [mm])
- With or without autofocus function
- Programmable 8X powerzoom
- Optical and digital zoom
- High resolution CCD colour camera
- Halogen fibreoptics
- Stage, coaxial and ring light
- Resolution 0.1 µm (0.0001 mm)
- "One click tool" technology for optimum edge detection
- Fast and simple navigation
- User-friendly QSPAK software

Device with powerzoom:
- Powerzoom programming with automatic adjustment of light intensity and pixel size

Model	Measuring range (mm) X : Y : Z	Length measurement deviation	Zoom lens	Magnification **48 cm** (19" screen)	Halogen transmit-tent light	Halogen coaxial light	Halogen ring light	Auto-focus
QS-L 2010 ZB	200 : 100 : 150	X/Y: (2.5+0.02 L) µm Z: (5.0+0.04 L) µm	•	0.75X - 5.25X Zoom lens: 30X - 208X	•	•	•	–
QS-L 3017 ZB	300 : 170 : 150	X/Y: (2.5+0.02 L) µm Z: (5.0+0.04 L) µm	•		•	•	•	–
QS-L 4020 ZB	400 : 200 : 150	X/Y: (2.5+0.02 L) µm Z: (5.0+0.04 L) µm	•		•	•	•	–
QS-L 2010 Z/AFB	200 : 100 : 150	X/Y: (2.5+0.02 L) µm Z: (5.0+0.006 L) µm	•	0.5X - 3.5X Zoom lens: 28X - 193X	•	•	•	•
QS-L 3017 Z/AFB	300 : 170 : 150	X/Y: (2.5+0.02 L) µm Z: (5.0+0.006 L) µm	•		•	•	•	•
QS-L 4020 Z/AFB	400 : 200 : 150	X/Y: (2.5+0.02 L) µm Z: (5.0+0.006 L) µm	•		•	•	•	•

QS-SERIES

QUICK SCOPE CNC:

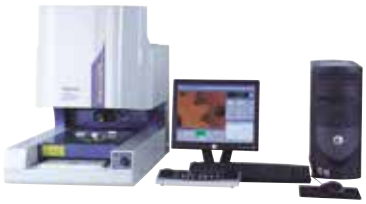
A CNC desktop instrument with an attractive performance to cost ratio. Perfectly suited to the measurement of small and medium-sized workpieces.

Accuracy:
2.5 µm

- Autofocus function
- Programmable 8X powerzoom
- High resolution CCD colour camera
- Halogen fibreoptics
- Stage, coaxial and ring light
- Resolution 0.5 µm (0.0005 mm)
- "One click tool" technology for optimum edge detection
- User-friendly QSPAK software

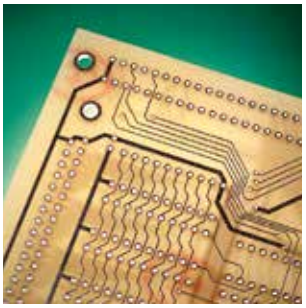
Device with powerzoom:
- Powerzoom programming with automatic adjustment of light intensity and pixel size

CNC



Magnification on screen 48 cm (19")

- With powerzoom x 28 to x 193

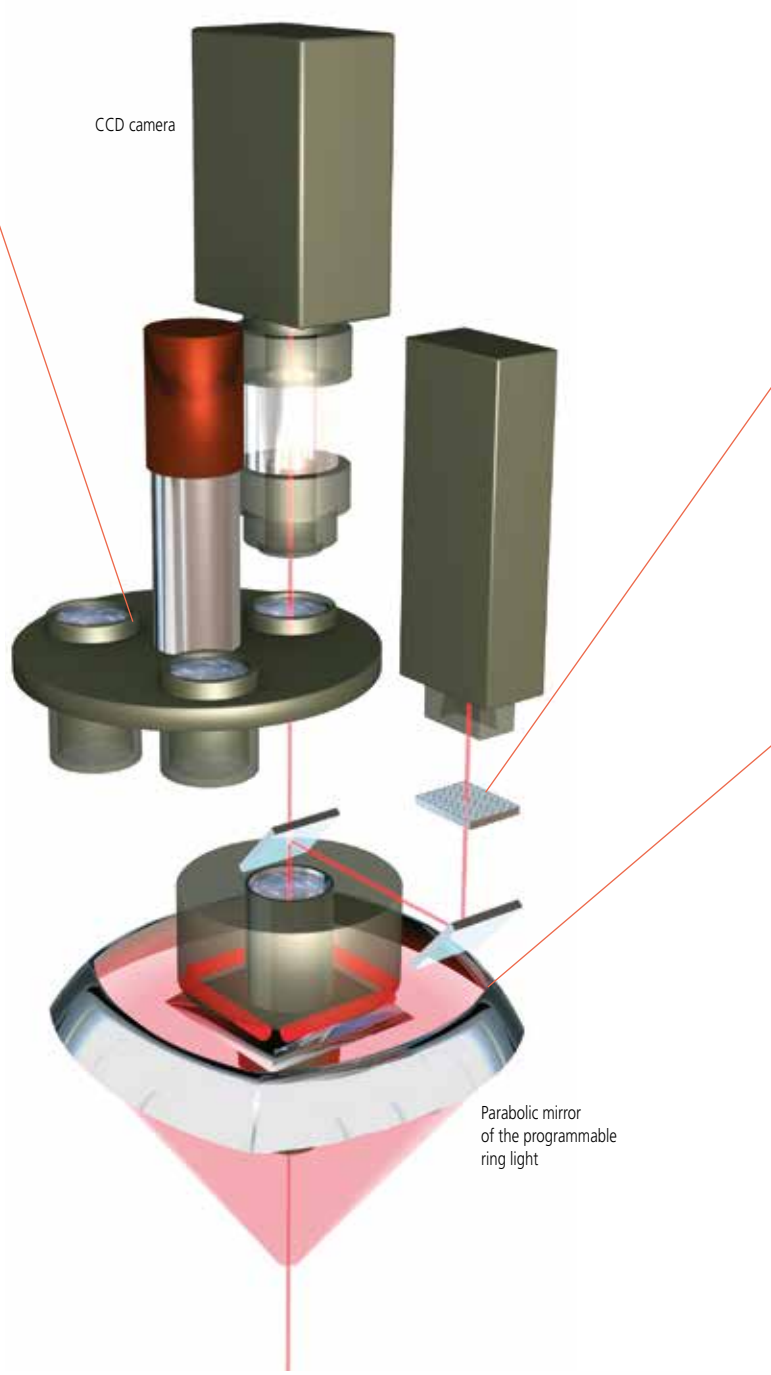


Model	Control	Measuring range (mm) X : Y : Z	Length measuring deviation	Zoom lens system	Halogen stage light	Halogen coaxial light	Halogen ring light	Autofocus
QS 250 Z	CNC	200 : 250 : 100	(2.5+0.006L) µm	•	•	•	•	•

QUICK VISION-Series
Top technology for top-class results.

Quickly change magnification without calibration or refocusing.
All QUICK Vision models feature programmable switchover between 1X, 2X and 6X magnification to let you select the optimum image size during the measurement cycle - and it's fast, with no need to calibrate and re-focus.

Depending on the magnification, the pixel size and light intensity are adapted to each new adjustment. This allows for 32X to 960X magnification on a **43 cm** (17") screen, depending on the objective lens used (1X, 2.5X, 5X).



Optimizing the image thanks to stage, coaxial and ring lights
All QUICK VISION models come equipped with a stage light for high-contrast edge lighting, a coaxial light for optimised surface lighting and a ring light for lateral illumination.

Large picture: typical application for the programmable ring light.
Top: stage light
Middle: coaxial light
Left: simple ring light

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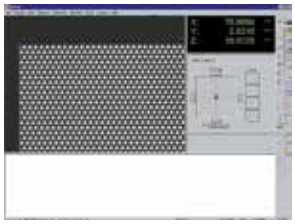
QV-SERIES

Fast and precise triangle-pattern focusing

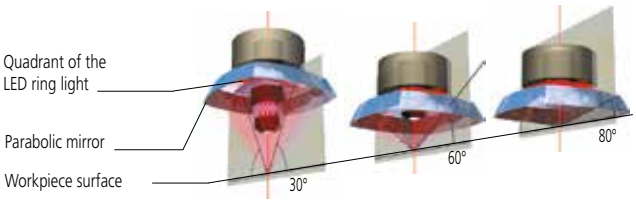


Application example with triangular pattern focussing

On difficult to detect, reflective and low-contrast surfaces, focussing is greatly facilitated by the projection of a triangular pattern. This is a standard feature on all QUICK VISION models.

Perfect illumination with programmable LED ring light.

For best results, even under difficult conditions, the QUICK VISION machines come as standard in their PRO versions with a programmable 4-quadrant LED ring light. The brightness of each of the four quadrants can be separately controlled by the software, creating optimum lighting conditions that, for example, will provide contrasting edge definition due to the projection of a shadow. The angle of light incidence can therefore be changed within a range of 30 to 80° in order to adjust the size of the shadow optimally to the workpiece.



Four-colour LED coaxial and ring light.

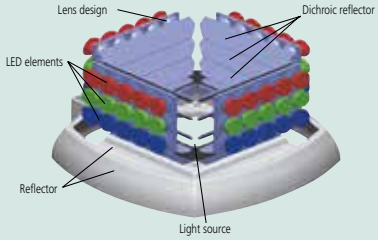
For improved representation of contrasts, the QUICK VISION measuring machines (with the exception of the ELF and ULTRA QV versions) operate with four-colour LED coaxial and ring lighting (RGB + white). The colour LEDs also act as colour filters and so also improve the measurement of coloured workpieces.

4-colour ring light (white and red, green and blue)

Options

Flash of brilliance: stroboscopic lighting

In addition to the progressive CCD camera, QUICK VISION STREAM PLUS also uses a stroboscopic light to illuminate the target area. Even the already extremely short exposure times of the progressive CCD camera are still relatively long, given the enormous speeds at which QUICK VISION STREAM PLUS measures. The stroboscopic light flashes for just a fraction of a millisecond. As such, the camera chip is only lit for this very small time period, rather than being continually lit from one frame to the next. Mitutoyo has perfectly mastered the art of triggering the flash and image acquisition while in motion at the required point of measurement.



Laser autofocus system for fast and accurate measurement in the Z-axis

Except for HYBRID models, all QUICK VISION models can be equipped with a laser autofocus system for much faster and more repeatable Z-axis measurements compaired to conventional autofocus technology. A TTL (through the lens) technique is used in which measuring range losses due to adjacent sensors are avoided. In addition, the visible laser point can also be used for fast and simple workpiece positioning.

Laser autofocus system.

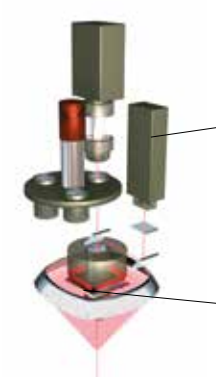
QUICK VISION *ELF*
Peak performance right from the start.

Compact desktop device for powerful and economic vision measurement.

Accuracy:
2 µm

- CNC-controlled
- Triangular pattern focussing for low-contrast surfaces
- Programmable magnification changer 1X, 2X and 6X
- High-precision measurement lens system 1X, 2.5X and 5X
- High-resolution CCD black and white camera
- Resolution 0.1 µm (0.0001 mm)
- Length measurement deviation E 1 (X, Y) at 20˚C: (2 + 0.003L) µm
- "One-click tool" technology for optimum edge detection
- User-friendly QVPAK software

Model	Designation	Measuring range (mm) X : Y : Z	Length measurement deviation	Ring light
Quick Vision ELF 202 PRO	**QV-E202P1L-C**	250 : 200 : 200	(2+0.003L) µm	Programmable 4-quadrant LED ring light, white



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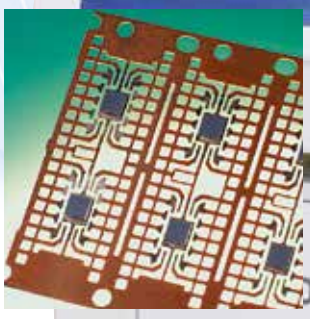
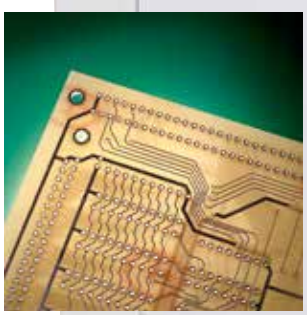
QV-ELF





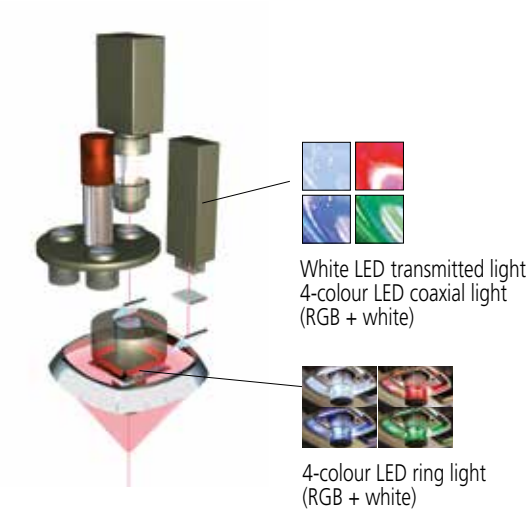
QUICK VISION
Full precision service.

QUICK VISION APEX/HYPER

Floor-standing CNC model designed for demanding tasks in vision-based measurement and featuring a choice of accuracy specification. Incorporates four-colour LED coaxial and ring lights.

Accuracy:
1.5 µm (QV APEX)
0.8 µm (QV HYPER)

- White LED transmitted stage light
- LED coaxial light with variable light color
- Programmable 4-quadrant LED ring light with variable light color
- CNC-controlled
- Triangular pattern focussing for low-contrast surfaces
- Programmable magnification changer 1X, 2X and 6X
- High-precision measurement lens system 1X, 2.5X and 5X
- High-resolution CCD black and white camera
- Resolution
  QUICK VISION APEX: 0.1 µm (0.0001 mm)
- "One-click tool" technology for optimum edge detection
- User-friendly QVPAK software



White LED transmitted light
4-colour LED coaxial light
(RGB + white)

4-colour LED ring light
(RGB + white)

Tabular overview of the various QV models, see page 16

QV-APEX/HYPER

QUICK VISION

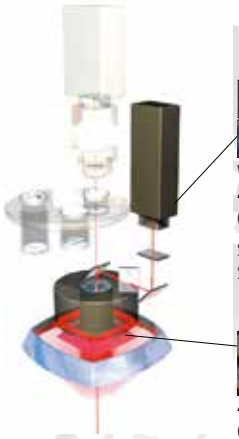
QUICK VISION STREAM PLUS

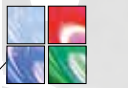
Non-stop measurement of workpiece details

LED technology for improved illumation conditions

Accuracy:
1.5 µm

- Measuring workpiece details while moving
- Drastic improvement in throughput
- Laser autofocus optinally available for fast focussing
- Measurements at a speed of max. 40 mm/s
- LED stage light
- LED coaxial light with variable light colour
- Programmable 4-quadrant LED ring light with variable light colour
- Triangular pattern focussing for low contrast surface
- High-precision measurement lens system 1X, 2.5X, and 5X
- "One-click-tool" technology for optimum edge detection
- User-friendly software QVPAK
- Progressive BW CCD camera
- Programmable power turret 1X, 2X and 6X



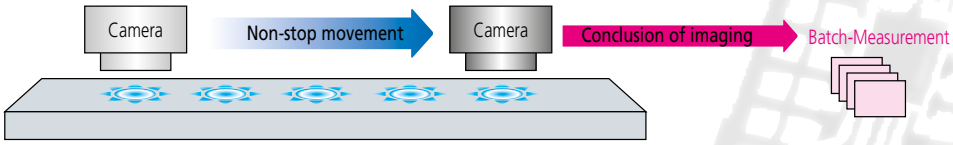


White LED transmitted light
4-colour LED coaxial light
(RGB + white)

STREAM-Mode:
Stroboscopic Light (Cyan)

4-colour LED ring light
(RGB + white)

STREAM-Mode:
Stroboscopic Light (Cyan)



Overview of QV APEX, QV STREAM and QV HYPER

Model	Designation	Measuring range [mm] X : Y : Z	Lighting system	Image sensor	Max. permissible length measurement deviation	Automatic magnifying change
Quick Vision APEX PRO	QV-X302P1L-C	300 : 200 : 200	LED transmittent light (white) RGB LED coaxial light RGB LED ring light	**12.70 mm** (1/2") (B/W) CCD camera	E1(X,Y): (1.5+0.003 L) µm E1(Z): (1.5+0.004 L) µm E2(XY): (2+0.004 L) µm	3 levels: 1X / 2X / 6X
	QV-X404P1L-C	400 : 400 : 250				
	QV-X606P1L-C	600 : 650 : 250				
Quick Vision APEX PRO3	QV-X302P3N-C	300 : 200 : 200	Halogen transmittent light Halogen coaxial light Halogen ring light	**8.46 mm** (1/3") Colour CCD camera		
	QV-X404P3N-C	400 : 400 : 250				
	QV-X606P3N-C	600 : 650 : 250				
Quick Vision STREAM PLUS PRO	QV-X302P1S-C	300 : 200 : 200	LED transmittent light (blue) RGB LED coaxial light RGB LED ring light	Progressive **12.70 mm** (1/2") (B/W) CCD camera		
	QV-X404P1S-C	400 : 400 : 250				
	QV-X606P1S-C	600 : 650 : 250				
Quick Vision HYPER PRO	QV-H302P1L-C	300 : 200 : 200	LED transmittent light (white) RGB LED coaxial light RGB LED ring light	**12.70 mm** (1/2") (B/W) CCD camera		
	QV-H404P1L-C	400 : 400 : 250				
	QV-H606P1L-C	600 : 650 : 250				

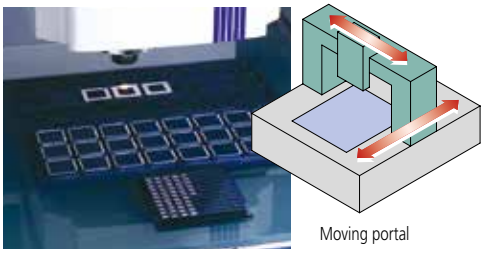
QV-STREAM PLUS

QUICK VISION ACCEL
The fast solution.

Stand-alone machine with fixed measuring stage for fast acceleration and traversing speeds. The dynamic solution for time-optimized testing of series.

Accuracy:
1.5 µm

- Fixed measuring stage
- Portal moves in all three axes
- No clamping of workpieces or measuring equipment required
- Speed in X- and Y-axes 400 mm/s
- White LED transmitted light
- Standard equiped with stage, coaxial and ring lights
- Programmable magnification changer 1X, 2X and 6X
- High-precision measurement lens system 1X, 2.5X and 5X
- High-resolution CCD black and white camera
- Resolution 0.1 µm (0.0001 mm)
- "One-click tool" technology for optimum edge detection
- User-friendly QVPAK software



Measuring without workpiece clamping

Moving portal

Model	Designation	Measuring range [mm] X : Y : Z	Lighting system	Image sensor	Max. permissible length measurement deviation
Quick Vision ACCEL PRO	QV-A808P1L-B	800 : 800 : 150	LED transmittent light (white) RGB LED coaxial light RGB LED ring light	**12.70 mm** (1/2") (B/W) CCD camera	E1(X,Y): (1.5+0.003L) µm E1(Z): (1.5+0.004L) µm E2(XY): (2.5+0.004L) µm
	QV-A1010P1L-B	1000 : 1000 : 150			
	QV-A1212P1L-B	1250 : 1250 : 100			E1(X,Y): (2.2+0.003L) µm E1(Z): (2.5+0.005L) µm E2(XY): (3.5+0.004L) µm
	QV-A1517P1L-B	1500 : 1750 : 100			
Quick Vision ACCEL PRO3	QV-A808P3N-B	800 : 800 : 150	Halogen transmittent light Halogen coaxial light Halogen ring light	**8.46 mm** (1/3") Colour CCD camera	E1(X,Y): (1.5+0.003L) µm E1(Z): (1.5+0.004L) µm E2(XY): (2.5+0.004L) µm
	QV-A1010P3N-B	1000 : 1000 : 150			
	QV-A1212P3N-B	1250 : 1250 : 100			E1(X,Y): (2.2+0.003L) µm E1(Z): (2.5+0.005L) µm E2(XY): (3.5+0.004L) µm
	QV-A1517P3N-B	1500 : 1750 : 100			

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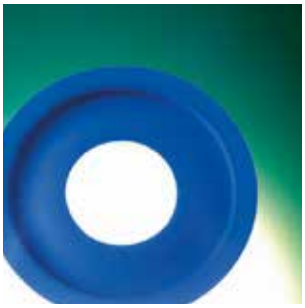
QV-ACCEL



QUICK VISION TP-Series
No compromise.

Multi-sensor system:
Vision sensor and Touch probe

- Expanded application range by combining contact and non-contact measurements
- Equipped with TP20 or TP200 touch probe
- Flexible exchange of stylus configuration with MCR20 change rack (Option)
- User friendly QVPAK software

Accuracy:
1.5 µm (APEX)
0.8 µm (HYPER)

Messtaster

Model	Designation	Measuring range [mm] X : Y : Z		Max. permissible length measurement deviation	
Quick Vision TP Apex		Using 1 sensor	Using both sensors	With optical sensor	With Touch Probe
	QVT1-X302P1L-C	300 : 200 : 200	234 : 200 : 200	E1(X,Y): (1.5 + 0.003 L) µm	E1(X, Y, Z): (1.8 + 0.003 L) µm
	QVT1-X404P1L-C	400 : 400 : 250	334 : 400 : 250	E1(Z): (1.5 + 0.004 L) µm	
	QVT1-X606P1L-C	600 : 650 : 250	534 : 650 : 250	E2(XY): (2 + 0.004 L) µm	
Quick Vision TP Hyper	QVT1-H302P1L-C	300 : 200 : 200	234 : 200 : 200	E1(X,Y): (0.8 + 0.002 L) µm	E1(X, Y, Z): (1.7 + 0.003 L) µm
	QVT1-H404P1L-C	400 : 400 : 250	334 : 400 : 250	E1(Z): (1.5 + 0.002 L) µm	
	QVT1-H606P1L-C	600 : 650 : 250	534 : 650 : 250	E2(XY): (1.4 + 0.003 L) µm	

More models available, contact Mitutoyo for more information

ULTRA QV

QUICK VISION WLI
No compromise.

Multi-sensor system:
Vision sensor and White Light Interferometer sensor

Accuracy:
0.8 µm

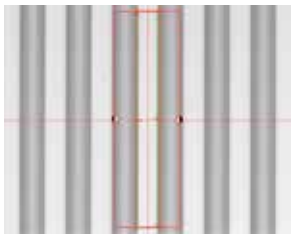
- Combined non contact measurements with vision system and White Light Interferometer (WLI)
- Easy alignment and positioning with the vision sensor
- Full QVPAK functionality with vision system
- Enhanced functionality with WLI-system for high resolution topography evaluation
- Large measuring range up to 600 x 650 x 240 mm

QV-WLI objective lenses 10X and 25X

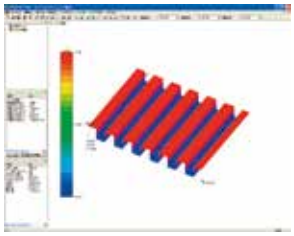
Model	Measuring range [mm] X : Y : Z		Resolution	Illumination	Max. permissible length measurement deviation
Hyper QV WLI 404 PRO	Vision sensor	WLI-Sensor	0.01 µm	Stage light: White LED* Coaxial light: Colour LED* Ring light: Colour LED*	E1 XY: (0.8 + 2L/1000) µm E1 Z: (1.5 + 2L/1000) µm E2 XY: (1.4 + 3L/1000) µm
	400 : 400 : 240	315 : 400 : 240			
Hyper QV WLI 606 PRO	600 : 650 : 240	515 : 650 : 240			

* only for vision sensor

Application examples



2-D Topview
(Vision system)



3-D Image (WLI sensor)

Section analysis

ULTRA QV

NEW-STYLE
Vision Measuring Systems

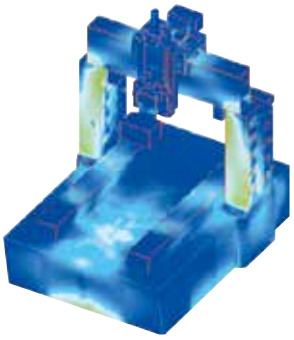
QUICK VISION ULTRA
No compromise.

Stationary CNC system with air bearings on all axis for the ultimate in measuring accuracy.
The machine to use when nothing else will do.

Accuracy:
0.25 µm

Model	Measuring range (mm) X : Y : Z	Length measuring deviation at 20 °C
QUICK VISION ULTRA		
QV-U404PRO	400 : 400 : 200	E_1(XY): (0.25 + 0.1 L/100) µm E_1(Z): (1.5 + 0.2 L/100) µm E_2(XY):(0.5 + 0.2 L/100) µm

PRO version
- Programmable 4-quadrant LED ring light
- 3-stage magnification changer

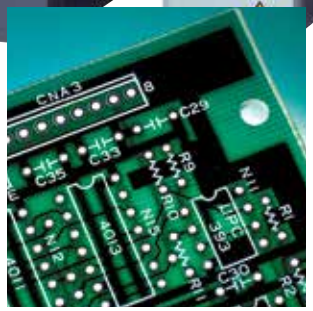


Stable portal designed using the finite element method (FEM)

- CNC control
- Air bearings on the axes
- Halogen transmitted light
- Halogen coaxial light
- Programmable four-quadrant halogen ring light
- Programmable magnification changer 1X, 2X and 6X
- High precision measuring lens system 1X, 2.5X and 5X
- High resolution CCD black and white camera
- Resolution 0.01 µm (0.00001 mm)
- "One-click tool" technology for optimum edge detection
- Userfriendly QVPAK software

Mitutoyo

ULTRA QV



Accessories

Software-controlled Index rotary table for QUICK VISION machines

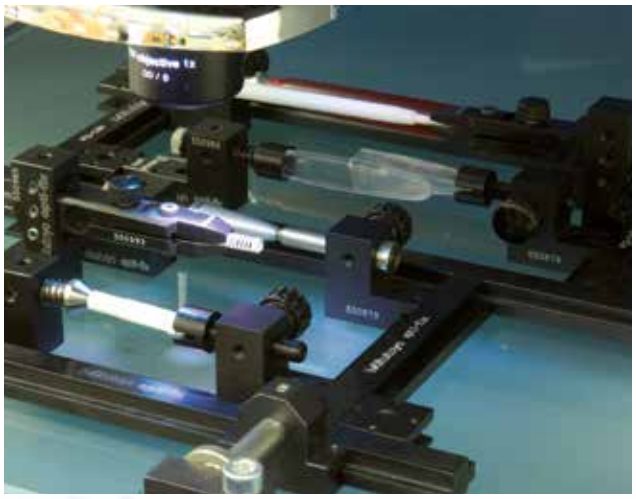
The horizontal QV Index rotary table turns the measured parts in 0.1 degree increments and thereby allows measurement of several workpiece sides without re-chucking. The software enables fully-automatic CNC operation of the additional axes.

Mitutoyo measuring lens systems for QUICK VISION machines

Quality workmanship for best image reproduction. Mitutoyo "long working distance" lens systems are distinguished by their excellent resolution at long working distances.

Magnification	Objective lens	Order no.	N.A.	Working distance [mm]	Visible area [mm] B/W camera	Visible area [mm] Color camera (PRO3)
0,5X	QV-SL0,5X	02AKT199	0.025	30.5	12.54 x 9.4	9.4 x 7.04
1X	QV-1X	02ALA400	0.055	34	6.27 x 4.7	4.7 x 3.52
	QV-SL1X	02ALA150	0.055	52.5		
	QV-HR1X	02AKT250	0.084	40.6		
2,5X	QV-SL2,5X	02ALA170	0.14	60	2.5 x 1.88	1.87 x 1.41
	QV-HR2,5X	02AKT300	0.28	40.6		
5X	QV-5X	02ALA420	0.28	33.5	1.25 x 0.94	0.93 x 0.7
10X	QV-10X	02ALG010	0.28	30.5	0.62 x 0.47	0.46 x 0.34
	QV-HR10X	02AKT650	0.42	20		
25X	QV-25X	02ALG020	0.55	13	0.25 x 0.18	0.18 x 0.14

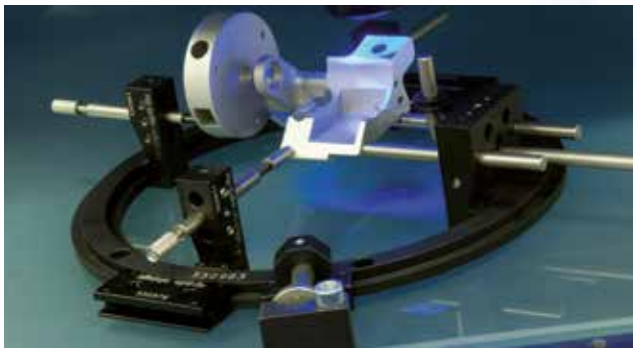
Optional Accessories



Mitutoyo opti-fix
The Mitutoyo opti-fix system allows the quick and safe solution of very different tasks using only a few components. In case of measuring methods using reflected as well as transmit-ted light for measurement of cubic, rotationally symmetri-cal and especially flat workpieces, the use of Mitutoyo opti-fix is a really practical solution. Furthermore, the spring clips and centering pins of different design which are integrated in the system allow also tactile measuring. Mitutoyo opti-fix offers the user a large number of possibilities for part fixing, form clamping tweezers for miniature test specimens to precision vice for large parts.

Mitutoyo opti-fix round
Mitutoyo opti-fix round, the innovative, newly developed tool "Mitutoyo opti-fix round" completes the opti-fix types in the true sense of the word "the wheel comes full circle".

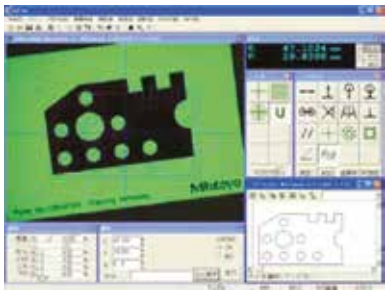
The circular design allows an infinitely variable adjustment of 360° in horizontal level as well as in space and additionally, the "pin fixing" at the sides ensures a userfriendly access to the workpiece.



MiCAT
Mitutoyo Intelligent Computer Aided Technology
the standard in world
metrology software
VISION

QIPAK

– the software package for QUICK IMAGE vision measuring systems



Everything to view, everything to hand: with clearly structured menus, easy-to-read symbols and logical operating sequences, QIPAK takes the effort out of work. All measurement software sequences such, as light control, magnification or parts programming, can be followed directly and without difficulty.

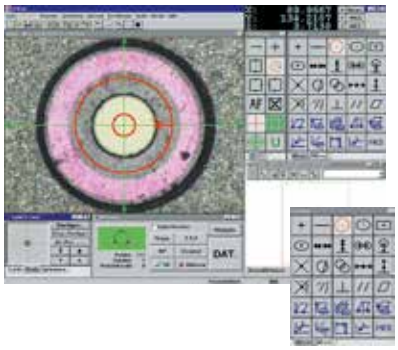
QVPAK

– the software package for the QUICK VISION system

The enormous versatility and user-friendly basic software for QUICK VISION measuring systems. The sophisticated structure, practical tools and excellent on-screen representation open up a whole new world of efficient measurement. With QVPAK, even extremely complex measurement processes can be planned, controlled and evaluated easily. Even new users will have a smooth entry into the world of QPAK with its integrated online help. And the programming language QVBasic, which is based on Visual Basic, ensures maximum flexibility – for example when connecting up barcode readers, for data transfer to MS Office applications or the creation of user-defined input and query dialogues.

QSPAK

– the software package for QUICK SCOPE vision measurement systems



QSPAK is easy to learn, quick to use, and gives precise results for the QUICK SCOPE vision measuring machine – for quality work without complications.

Mitutoyo

Professional

for
QUICK IMAGE
Vision systems

QIPAK

Software package

Expansion modules

MeasurLink
Module for the statistical management of measured data as well as the analysis and storage of measured data.

QS CAD-IMPORT/EXPORT
Converts data in exchange with QSPAK and the CAD system. Easy import and export of IGES and DXF file formats.

FORMPAK-QV
Efficient, easy-to-use program for contour analysis and evaluation.

for
SCOPE
Vision systems

QSPAK

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for
QUICK VISION
Vision systems

QVPAK

Software package

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QV CAD-IMPORT/EXPORT
Converts data in exchange with QSPAK and the CAD system. Easy import and export of IGES and DXF file formats.

QV EIO PC / QV EIO
Serves communication between the QUICK VISION system and an externally programmable controller or an external PC via RS-232C interface.

QV Partmanager
The pallet management program enables testing of several different workpieces consecutively in one measuring flow. During measurement, evaluation is "at a glance".

PAGPAK
Generates parts programs specially for the measurement of bores in printed circuit boards. Reads CNC or NC data from milling or drilling machines and uses them in the test.

EASYPAG
Uses IGES or DXF data for the offline preparation of parts programs.

FORMPAK-QV
Efficient, easy-to-use program for contour analysis and evaluation.

QV GEARPAK
Generates a parts program for measuring gearwheels - including evaluation module for gearwheel parameters.

Another Gauge to Measure your Partners: Competent advice and service

Anyone who performs precision work needs a partner with sharp vision. Not only in the development and supply of the ideal measuring system, but also before and after – with advice and service. As a manufacturer of measuring machines with one of the world's broadest range of products and over seven decades of experience, Mitutoyo has a particularly refined range of services that guarantee absolute customer satisfaction long before, and for a long time after, the decision to purchase.

Service

DAkkS accredited calibration laboratory; central service workshop; large machine repairs on site at customers' premises; contract measuring at all orders of magnitude; professional maintenance including using online systems; training and ongoing training at the Mitutoyo Information Center of Metrology (MIM); comprehensive information and data pool in online product lounges; competent service hotlines; contacts at your Mitutoyo customer centres. With all this, you can be sure that you have made the right choice with Mitutoyo – and we can be sure of being able to satisfy your needs completely, well into the future. Because that, at the end of the day, is the standard against which you will measure your machine suppliers. After all, technical perfection goes without saying – at least from Mitutoyo.

Advice

Depending on your requirements, you can define, in close dialogue with the Mitutoyo specialist consultants, the machine or system selection to fit your specific measuring tasks – either standard or special tailor-made solutions in the context of the revolutionary M3 solution concept from Mitutoyo. This guarantees that you will be operating with the most suitable measuring equipment, both in terms of technical aspects and cost. As the sole complete supplier in its sector, Mitutoyo is well placed to configure the most efficient and suitable systems for you.

Coordinate Measuring Machines

Vision Measuring Systems

Form Measurement

Optical Measuring

Sensor Systems

Test Equipment and Seismometers

Digital Scale and DRO Systems

Small Tool Instruments and Data Management

Whatever your challenges are, Mitutoyo supports you from start to finish.

Mitutoyo is not only a manufacturer of top quality measuring products but one that also offers qualified support for the lifetime of the equipment, backed up by comprehensive services that ensure your staff can make the very best use of the investment.

Apart from the basics of calibration and repair, Mitutoyo offers product and metrology training, as well as IT support for the sophisticated software used in modern measuring technology. We can also design, build, test and deliver bespoke measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.

Find additional product literature and our product catalogue

www.mitutoyo.eu

Mitutoyo

Mitutoyo Europe GmbH

Borsigstraße 8-10
41469 Neuss

Tel. +49 (0) 2137-102-0
Fax +49 (0) 2137-102-351

info@mitutoyo.eu
www.mitutoyo.eu