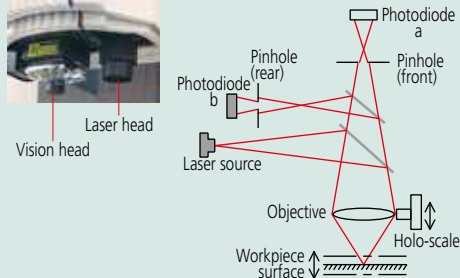


QV HYBRID Type 1, Type 3

SERIES 365 – CNC Vision Measuring System

FEATURES: Hybrid Type 1

- The focusing point method minimizes any difference in the measuring face reflectance and realizes high measurement reproducibility.
- The double pinhole method (less directivity) is employed as the measurement principle.



Laser Beam Safety Precautions

This system uses a low-power invisible laser beam (780 nm) which corresponds to a CLASS 1 (invisible radiation) of IEC60825-1 for measurement. The CLASS 1 laser warning label as shown below is attached to the main unit.



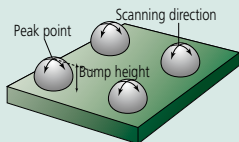
FEATURES: Hybrid Type 3

- Enables surface roughness or thickness measurement of thin and transparent objects such as film. Measurable thickness: 25 to 300 µm
- Enables detection of high inclination angles both for mirrored surfaces and diffusing surfaces.
- Realizes high-resolution/accuracy height measurement by the wavelength confocal method using axial chromatic aberration.

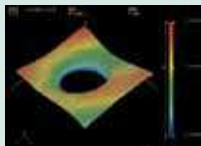
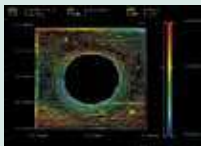
* For Type 3, due to the white halogen light, it is not subject to JIS C 6802 Radiation safety standard of laser products.

Applications

- Measurement of BGA/CSP bump height and coplanarity of IC packages



- Curved-form analysis (MSHAPE-QV)
2D/3D contour lines display
2D/3D unfiltered profile display
Shadow graph display
Curved plane analysis
Unfiltered profile analysis, etc.



- Data processing (QV Graph)
3D Bar chart display
3D Surface chart display
2D continuous cross-section graph display



- The Quick Vision Hybrid is a complex machine which allows vision measurement with both a CCD camera and high-speed scanning by applying a vision measurement unit in parallel with a non-contact displacement sensor.



SPECIFICATIONS: QV Apex-based

Model		QVH Apex 302		QVH Apex 404		QVH Apex 606	
Type		1	3	1	3	1	3
Code No.		365-111	365-311	365-131	365-331	365-151	365-351
Measuring range X : Y : Z	Vision	300 : 200 : 200 mm		400 : 400 : 250 mm		600 : 650 : 250 mm	
	Non-contact displacement sensor	180 : 200 : 200 mm	176 : 200 : 200 mm	280 : 400 : 250 mm	276 : 400 : 250 mm	480 : 650 : 250 mm	476 : 650 : 250 mm
Accuracy* ¹	E _{1xy}	±(1.5+0.3L/100) μm					
	E _{1z}	±(1.5+0.4L/100) μm / ±(1.5+0.4L/100) μm* ²					
	E _{2xy}	±(2.0+0.4L/100) μm					

SPECIFICATIONS: QV STREAM PLUS-based

Model		QVH STREAM PLUS 302		QVH STREAM PLUS 404		QVH STREAM PLUS 606	
Type		1	3	1	3	1	3
Code No.		365-115	365-215	363-135	363-235	365-155	365-255
Measuring range X : Y : Z	Vision	300 : 200 : 200 mm		400 : 400 : 250 mm		600 : 650 : 250 mm	
	Non-contact displacement sensor	180 : 200 : 200 mm	176 : 200 : 200 mm	280 : 400 : 250 mm	276 : 400 : 250 mm	480 : 650 : 250 mm	476 : 650 : 250 mm
Accuracy* ¹	E _{1xy}	±(1.5+0.3L/100) μm					
	E _{1z}	±(1.5+0.4L/100) μm / ±(1.5+0.4L/100) μm* ²					
	E _{2xy}	±(2.0+0.4L/100) μm					

SPECIFICATIONS: Hyper QV-based

Model		Hyper QVH 302		Hyper QVH 404		Hyper QVH 606	
Type		1	3	1	3	1	3
Code No.		365-114	365-214	365-134	365-234	365-154	365-2354
Measuring range X : Y : Z	Vision	300 : 200 : 200 mm		400 : 400 : 250 mm		600 : 650 : 250 mm	
	Non-contact displacement sensor	180 : 200 : 200 mm	176 : 200 : 200 mm	280 : 400 : 250 mm	276 : 400 : 250 mm	480 : 650 : 250 mm	476 : 650 : 250 mm
Accuracy* ¹	E _{1xy}	±(0.8+0.2L/100) μm					
	E _{1z}	±(1.5+0.2L/100) μm / ±(1.5+0.2L/100) μm* ²					
	E _{2xy}	±(1.4+0.3L/100) μm					

SPECIFICATIONS: QV ACCEL-based

Model	QVH ACCEL 808	QVH ACCEL 1010	QVH ACCEL 1212	QVH ACCEL 1517
Type	1			
Code No.	365-313	365-333	365-353	365-373
Measuring range	800 : 800 : 150 mm			
X : Y : Z	680 : 800 : 150 mm			
Accuracy*1	±(1.5+0.3L/100) µm			
E _{1xy}	±(2.2+0.3L/100) µm			
E _{1z}	±(2.5+0.5L/100) µm / (1.5+0.4L/100) µm*2			
E _{2xy}	(2.5+0.4L/100) µm			

*1 Programmable power turret: 1X, objective set: 2.5X, L = measured distance between two arbitrary points (mm).

*2 Accuracy when using non-contact displacement sensor.

Main Unit Startup System

A start-up system (relocation detection sensor) is an integral security feature of this machine and will disable its operation if subject to relocation or strong vibration. Please be advised to contact your nearest Mitutoyo Service Centre as soon as possible or in advance of such circumstance.