



Large Stroke Type NEXIV VMR-6555



**High-speed measurements with a large stroke stage of 650 x 550mm.
Optimal for measurements of PCB patterns and external dimensions of a display panel.**





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**High-speed measurements with large 650 x 550 mm stroke stage.
 Optimal for measurements of PCB patterns and external dimensions of a display panel.
 You can save inspection costs by measuring a number of small parts at one time after placing them together on the stage.**

Applications

Semiconductor packages (multiple pieces), Substrates, Printing masks for substrates
 Stamped parts (multiple pieces), Connectors (multiple pieces), Injection moulded parts (multiple pieces)

- 650 x 550 mm stage stroke perfect for PCBs
- Automatic measurements of small parts by placing multiple pieces together on the stage
- Laser AF achieves high-accuracy measurements of bump heights
- Laser AF also enables measurements of height gaps and warping in work pieces
- Search function enables measurements of lands and holes of PCBs
- Search function also provides accurate measurements even when work pieces are not located properly on the stage
- Variety of illumination choices facilitate accurate edge detection even for vague geometries
- High-speed stage and high-speed image processing provide high throughput

Measurement Examples



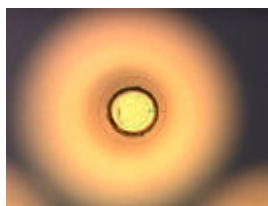
PCB



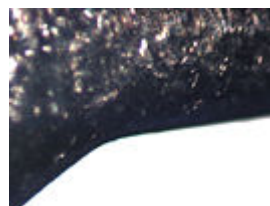
LCD



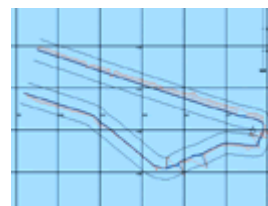
Molded part



Insertion pin of semiconductor package



Fine metal part and its 2D profile overlaid with a master shape



Result evaluation diagram of a metal part



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Standard head with 15X high-speed zoom

The standard head features 5-step, 15X high-speed zoom, providing greater flexibility in choosing magnifications according to the size of the measuring area.

Magnification vs field of view (mm)

Zoom position	1	2	3	4	5
Type 1					
Optical magnification	0.5x	1x	2x	4x	7.5x
Total magnification	18x	36x	72x	144x	270x
Field of view (mm)	9.33 x 7	4.67 x 3.5	2.33 x 1.75	1.165 x 0.875	0.622 x 0.467
Type 2					
Optical magnification	1x	2x	4x	8x	15x
Total magnification	36x	72x	144x	288x	540x
Field of view (mm)	4.67 x 3.5	2.33 x 1.75	1.165 x 0.875	0.582 x 0.437	0.311 x 0.233
Type 3					
Optical magnification	2x	4x	8x	16x	30x
Total magnification	72x	144x	288x	576x	1080x
Field of view (mm)	2.33 x 1.75	1.165 x 0.875	0.582 x 0.437	0.291 x 0.218	0.155 x 0.117

Total magnifications listed above represent those on the monitor screen when a 17" TFT monitor is set to the SXGA (1280 x 1024 pixels) mode.



1X



2X



4X



8X



15X

Color cameras can be used (optional).

Widefield, high N.A. objective lens

The highly corrected objective lens is equivalent to those found in Nikon's top-end microscopes. They have a high N.A. of 0.35 with a long 50mm working distance at all magnifications.

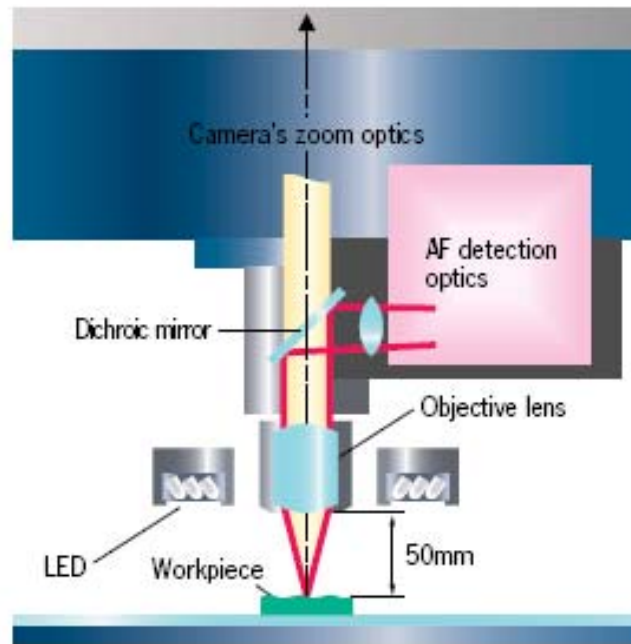


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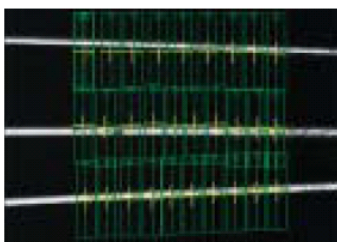
Upgraded TTL Laser AF

TTL Laser AF provides high resolution, long working distances, and fast operating speed for perfect focusing on narrow spaces at low magnifications.

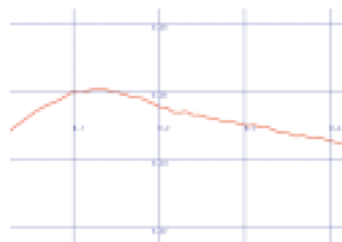
High-speed scanning measurement is possible at a rate of 1000 points per second max., enabling ultra-precise Z-axis measurements in a variety of applications.



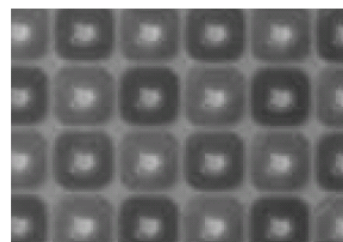
How TTL Laser AF works



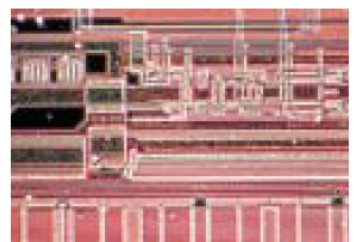
Multi-Vision AF on Bonding Wire



Loop Cross Section



CCD



IC Patterns

Z120X Model (with Maximum Magnification Module)

Amazing 120X zoom combined with a big stage enables ultrahigh magnification measurements on big work pieces. Ideal for measuring high-density PCBs and their masks.

- Amazing 120X zoom
 - Measurements of 1µm line widths are possible at the maximum magnification
 - Laser AF perfect for measuring small, complicated geometries
 - High-speed stage and image processing provide higher throughput Applications
- High-density PCBs, Exposure masks for substrate, Semiconductor packages (multiple pieces; 2D + height), Photo plotter machines for masks, Probe cards

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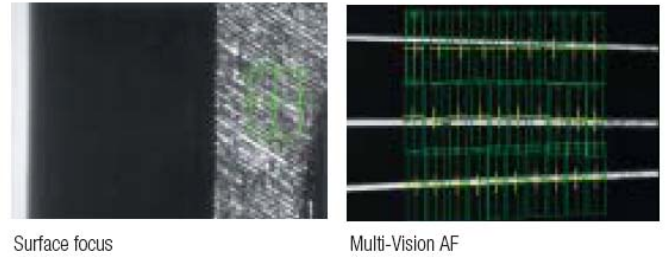
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High-speed, high-precision Vision AF
 Thanks to the adoption of a new algorithm and a progressive scan CCD camera, Vision AF now provides greater speeds and accuracy closer to TTL Laser AF. Vision AF is convenient for applications where TTL Laser AF cannot be used, for example, when focusing on chamfered or round edges. The Multiple-Vision AF enables the simultaneous measurement of multiple points with different heights within the field of view.



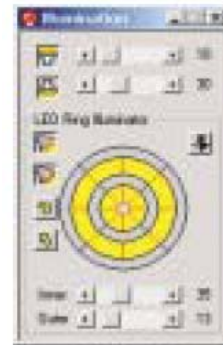
Wide choice of illumination

The VMR series comes with four illumination choices to provide illumination perfect for the workpiece to be measured.

These include:

- Two LED ring illuminators—Inner (37 degrees oblique angle against Optical Axis), Outer (75 degrees oblique angle)
- Episcopic illumination (top light)
- Diascopic illumination (bottom light)

Edges previously difficult to capture can be detected with high resolution. In addition, the VMR series features automatic light intensity control to provide the same brightness to multiple NEXIV systems without the need to edit the teaching program.

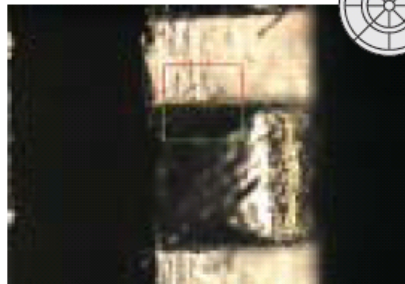


Illumination window

Connector

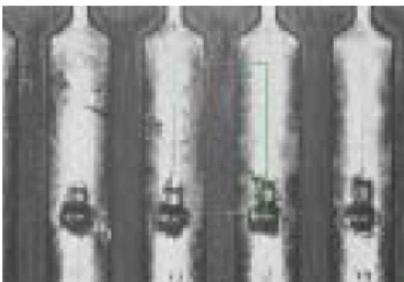


Episcopic illumination



LED ring illumination
 (large angles of incidence)

Metallized Patterns of FPC



Episcopic illumination

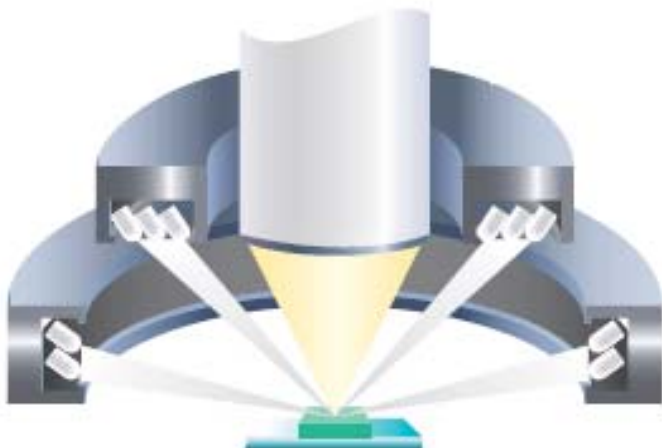


LED ring illumination
 (medium angles of incidence)



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Ensure measurements with high accuracy and at high speeds (Optical Head for Type 1, 2, 3)



8-sector LED ring illumination
 An illumination system consisting of inner and outer ring illuminators has been specially developed for the VMR series. The system makes possible observations of extremely low-contrast edges which are usually invisible under episcopic illumination by arbitrarily combining illuminations from eight directions. Best for edge enhancement of the contours of bosses, pins, ceramic packages, and similar workpieces.

How the 8-sector LED ring illuminator works



Outer ring illuminator
 (75° from the optical axis)
 This type enables the observation of workpieces that are impossible with lighting at a shallow angle. When not in use, the illuminator retracts, creating more space over the workpiece. When in use, the working distance will be 10mm.

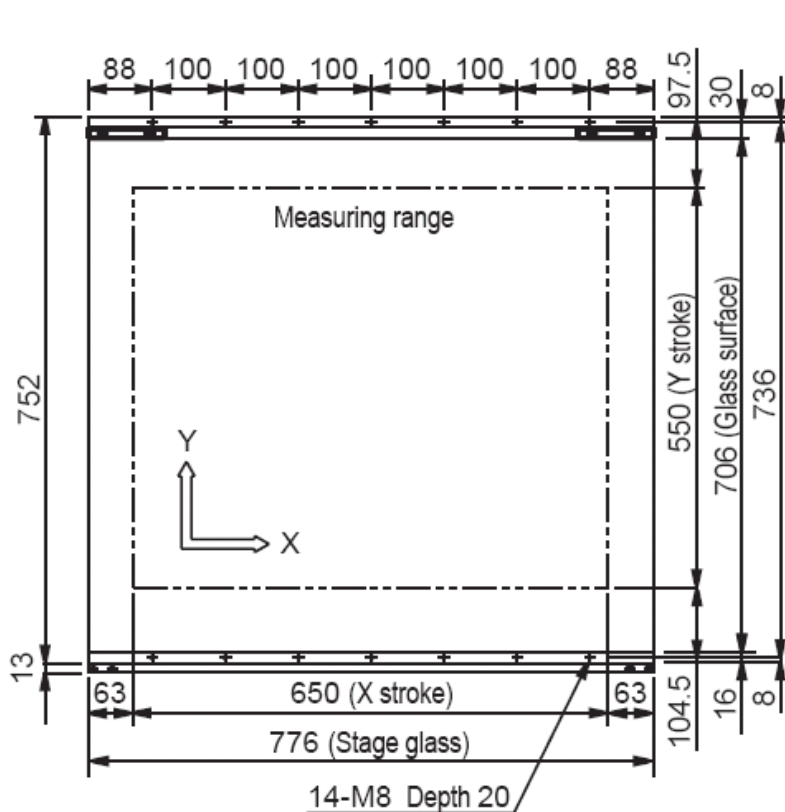
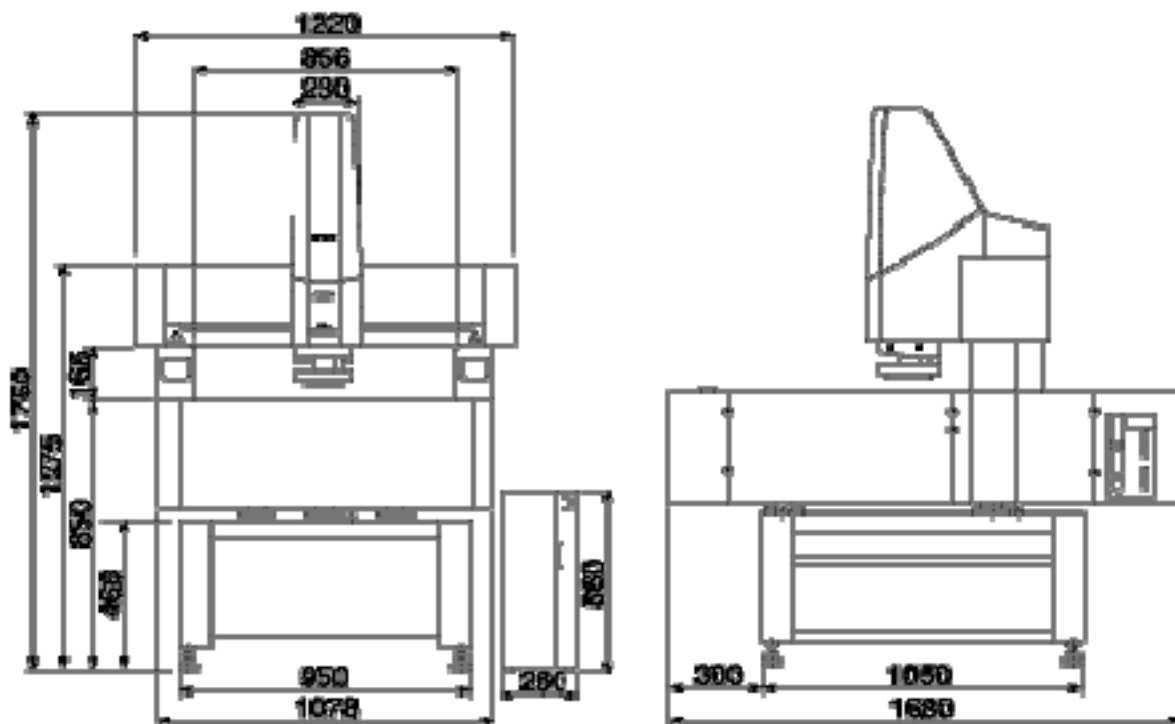


Inner ring illuminator
 (37° from the optical axis)
 This type can be universally used whenever strong illumination from various directions is needed. This illumination also provides a full 50mm working distance.



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VMR-6555 / VMR-6555 Z120X



Position of tapped holes
 for custom fixtures



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Specifications

Stroke (XxYxZ)	650 x 550 x 150 mm (25.6 x 21.7 x 5.9 in.)
Minimum readout	0.1µm
Maximum workpiece weight	30kg (66.1 lb)
Measuring accuracy	
U _{1X} , U _{1Y}	1.5 + 2.5L/1000µm (with a workpiece max. 30kg)
U _{2XY}	2.5 + 2.5L/1000µm (with a workpiece max. 30kg)
Z-axis (L: Length in mm < W.D.)	1.5 + L/150µm
Camera	B&W 1/3-in. CCD (progressive scan), color 1/3-in. CCD
Working distance	50mm
Magnification vs field of view	
Optical Head for Type 1	0.5 - 7.5X / 9.33 x 7 - 0.622 x 0.467 mm
Optical Head for Type 2	1 - 15X / 4.67 x 3.5 - 0.311 x 0.233 mm
Optical Head for Type 3	2 - 30X / 2.33 x 1.75 - 0.155 x 0.117 mm
Auto focus	TTL Laser AF and Vision AF
Illumination	Diascopic, episcopic, 8-segment LED ring illumination (inner ring / outer ring)
Power source	AC100-240V±10%, 50/60Hz
Power consumption	Max. 13A
Dimensions & weight	
Main unit & table	1220 (W) x 1680 (D) 1750 (H) mm, approx. 600kg (48.0 x 66.1 x 68.9 in., 1322.8 lb.)
Controller	250 (W) x 550 (D) x 500 (H) mm, approx. 31kg (9.8 x 21.7 x 19.7 in., 68.3 lb.)
Footprint	2400 (W) x 2000 (D) mm (94.5 x 78.7 in.)
Host Computer	
Main unit	WS from HP with Swiss Service & Warranty (Windows® XP)
Monitor	20-in. TFT color from Eizo

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