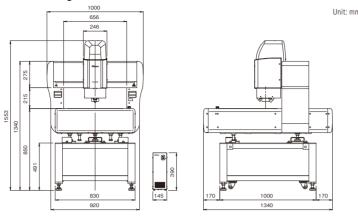
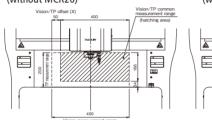
Constitution

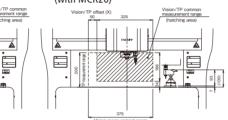
Specifications					
iNEXIV VMA-4540V/4540 main bo	dy				
Stroke (X x Y x Z)	450 x 400 x 200mm (18"x 16"x 8")				
Measurement range with TP (Touch Probe)*1	400 x 400 x 166mm (TP20) 400 x 400 x 170mm (TP200) 450 x 400 x 200mm (with Vision AF) 325 x 400 x 166mm (TP20) 325 x 400 x 170mm (TP200) 375 x 400 x 200mm (with Vision AF)				
Measurement range with TP & MCR20*2					
Minimum readout	0.1µm				
Maximum workpiece weight	40 kg (up to 20 kg accuracy guaranteed)				
Maximum permissible error*3	$ \begin{array}{l} E_{UX,MPE} \; E_{UY,MPE} \; 2+6L/1000 \mu m (with Vision AF) \\ E_{UX,MPE} \; 3+6L/1000 \mu m (with Vision AF) \\ E_{UZ,MPE} \; 3+L/100 \mu m (with Laser AF or Touch Probing) \\ (L = Length in mm) \end{array} $				
Camera	1/3-in. 3CCD color or B/W Progressive scan				
Working distance	73.5 mm (63 mm with Laser AF)				
Magnification	Optical: 0.35 to 3.5x On screen: 12.6 to 126x with 24-inch WUXGA (1920 x 1200 pixels) monitor				
FOV size	13.3 x 10mm to 1.33 x 1mm				
Auto focus	Vision AF and optional Laser AF				
Illumination Contour illumination Surface illumination Oblique illumination	White LED diascopic illumination White LED episcopic illumination 8-segment white LED ring illumination				
Video resolution	640 x 480 (pixels)				
Touch probe (optional)	Renishaw [®] TP200/TP20				
Power source	100V-240 V, 50/60 Hz				
Power consumption	5A-2.5A (excluding power consumption of host computer and its peripherals)				
Dimensions & weight Main body with table (W x D x H) Controller	1000 x 1340 x 1553mm, 500 kg 145 x 400 x 390mm, 13 kg				
Operational environment Temperature Humidity	10°C to 35°C 70% or less				
Host computer					
CPU	Intel [®] Core [™] 2 Duo CPU or faster				
Memory	4GB or more				
Operating system	Windows [®] 7 32bit				

Dimensional diagram



Measurement range of VMA-4540 with TP20 with 10 mm stylus (without MCR20) (with MCR20)

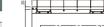




USB2.0/IEEE1394 Interface

*2 The iNEXIV-dedicated MCR20 can be used for both TP20 and TP200. *3 Nikon's in-house test at 20°C ±0.5k

*1 The touch probe can only be attached to the VMA-4540, and not to the VMA-4540V.



Top view of stage



ISO 9001

BUREAU VERITAS

Laser AF is a Class 1 Laser Product

CLASS 1 LASER PRODUCT

N.B. Export of the products* in this catalog is controlled under the Japanese Foreign Exchange and Foreign Trade Law. Appropriate export procedure shall be required in case of export from Japan. *Products: Hardware and its technical information (including software)

Specifications and equipment are subject to change without any notice or obligation on the part of the manufacturer. February 2014 ©2014 NIKON CORPORATION

WARNING

TO ENSURE CORRECT USAGE, READ THE CORRESPONDING MANUALS CAREFULLY BEFORE USING YOUR EQUIPMENT.

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NIKON CORPORATION Shin-Yurakucho Bldg., 12-1, Yurakucho 1-chome, Chiyoda-ku, Tokyo 100-8331, Japan phone:+81-3-3216-2384 fax:+81-3-3216-2388 http://www.nikon.com/instruments/

NIKON METROLOGY, INC. 12701 Grand River Avenue, Brighton, MI 48116 U.S.A. phone: +1-810-220-4360 fax: +1-810-220-4300 E-mail: Sales.US.NM@nikon.com

http://us.nikonmetrology.com/ . http://www.nikoni nstruments.com NIKON METROLOGY EUROPE NV Geldenaaksebaan 329, 3001 Leuven, Belgium phone: +32-16-74-01-00 fax: +32-16-74-01-03

E-mail: Sales.Europe.NM@nikon.com http://www.nikonmetrology.com/ NIKON INSTRUMENTS (SHANGHAI) CO., LTD.

CHINA phone: +86-21-6841-2050 fax: +86-21-6841-2060 (Beijing branch) phone: +86-10-5831-2028 fax: +86-10-5831-2026 (Guangzhou branch) phone: +86-20-3882-0552 fax: +86-20-3882-0580

NIKON SINGAPORE PTE LTD SINGAPORE phone: +65-6559-3618 fax: +65-6559-3668 NIKON MALAYSIA SDN BHD MALAYSIA phone: +60-3-7809-3688 fax: +60-3-7809-3633 NIKON INSTRUMENTS KOREA CO., LTD. KOREA phone: +82-2-2186-8400 fax: +82-2-555-4415 NIKON INDIA PRIVATE LIMITED INDIA phone: +91-124-4688500 fax: +91-124-4688527 NIKON INSTRUMENTS S.p.A. ITALY phone: +39-055-300-96-01 fax: +39-055-30-09-93

NIKON METROLOGY UK LTD. UNITED KINGDOM phone: +44-1332-811-349 fax: +44-1332-639-881 F-mail: Sales UK NM@nikon.com



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NIKON METROLOGY SARL FRANCE phone: +33-1-60-86-09-76 fax: +33-1-60-86-57-35 E-mail: Sales.France.NM@nikon.com NIKON METROLOGY GMBH

GERMANY phone: +49-6023-91733-0 fax: +49-6023-91733-229 E-mail: Sales.Germany.NM@nikon.com

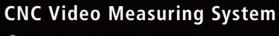
> Официальный дистрибьютор Nikon в России и странах СНГ



Россия, 127055, г. Москва, ул. Новолесная, д. 2 тел.: +7 (495) 223-40-00 факс: +7 (495) 223-40-01 http://www.tokyo-boeki.ru email: systems@tokyo-boeki.ru

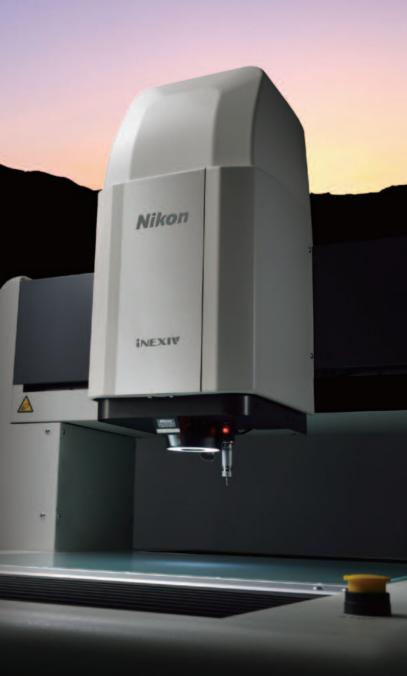






INEXIV VMA-4540V/4540





Reaching the peak of video measuring systems

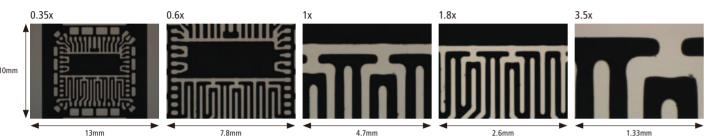
The CNC video measuring system, with a large stage and touch probe*, is ideal for a wide variety of industrial measuring applications.

The VMA-4540V/4540 is designed for high-accuracy measurement of a variety of workpieces. A wide field of view enables easy confirmation of measurement areas and provides unparalleled operation. Its broader XYZ measurement range, with a longer working distance than ever before, provides ultimate versatility for measurement of both large and tall mechanical parts and uneven surfaces. * The touch probe can only be attached to the VMA-4540, and not to the VMA-4540V.

Wide FOV (Field of View)

A wide FOV of up to 13 mm x 10 mm (at 0.35x) allows easy search and alignment of measuring targets. The 10x zoom with five specific steps provides accurate measurement as well as highresolution images. An excellent Apochromat objective lens with high NA (0.11) and low distortion has been specially designed for the iNEXIV series, providing crisp, clear images.

Optical magnification		0.35x	0.6x	1x	1.8x	3.5x	
FOV size on stage	Horizontal x vertical (mm)	13.3 x 10.0	7.8 x 5.8	4.7 x 3.5	2.6 x 1.9	1.33 x 1.00	
1/3" CCD size	Horizontal x vertical (mm)	4.8 x 3.6					
Video magnification		36					
Total magnification on video window (640 x 480 pixels)*		12.6	21.6	36	64.8	126	
Pixel size (µm)		21.8	12.6	7.36	4.25	2.15	
Size of objects on video window (640 x 480 pixels)	0.01x (mm) 0.1x (mm) 1x (mm)	0.126 1.26 12.6	0.216 2.16 21.6	0.36 3.6 36	0.648 6.48 64.8	1.26 12.6 126	
* On a 24-inch WUXGA (1920 x 1200 pixels) monitor, recommended for the VMA series							



Robust 73.5 mm working distance

A long 73.5 mm working distance minimizes the possibility of contact between the objective lens and valuable parts. It is ideal for measuring large step heights, tall bosses and deep holes.

111

Working distance 73.5 mm

of large samples and mass inspections of multiple parts all at once. An extended 200 mm Z stroke is perfect for tall workpieces.

200 mm (Z)

Fast and accurate vision AF (Auto Focus)

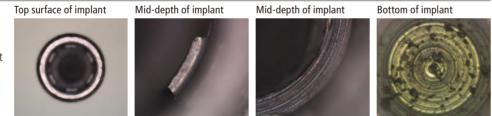
The VMA-4540V/4540 series is equipped with highly repeatable vision AF that offers highspeed, high-precision focusing and height/ depth measurement. Non-contact measurement using vision AF does not damage or deform parts, and does not necessitate fixing.

The Laser AF with a long 63 mm working

distance is optionally available, enabling

height measurement of flat surfaces with

high repeatability, in keeping a wide FOV at

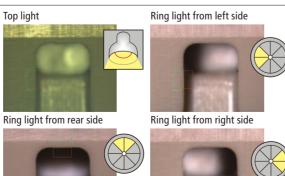


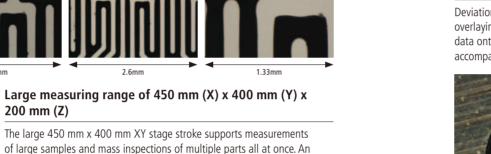
Even the bottom of a small diameter hole can be brought into correct focus.

Versatile illuminations

The VMA-4540V/4540 is equipped with episcopic (top), diascopic (bottom) and 8-segment ring (with 18-degree oblique angle) LED illuminators. Combining these illuminators with superior optics provides accurate detection of low contrast edges.

> Any 8-segment light can be selected for effective edge detection.





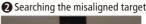
Intelligent search

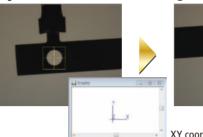
Target is detected



errors.

Recorded image



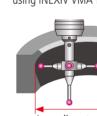


XY coordinate

Digital chart comparator

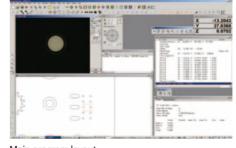
Deviation of contours can be checked by overlaying charts generated digitally from 2D CAD data onto video images. Digital charts always accompany video images.





User-friendly standard software iNEXIV VMA AutoMeasure

The VMA AutoMeasure software provides enhanced ease of use and versatility based on Nikon's years of extensive experience in developing the NEXIV series.



Main program layout

Optional software

iNEXIV VMA Profiler/CAD Reader: 2D profile shape analysis program

iNEXIV VMA Virtual AutoMeasure: CAD interface off-line teaching support program

Gear evaluation software: Analysis of flat gears in terms of pitch deviations, tooth profile errors, tooth space run out, base tangent length, dimension over pin

NEXIV EDF/Stitching Express: Image analysis and archiving program for creating an all-in-focus EDF (Extended Depth of Focus) image from multiple images at different Z axis. This also generates a stitched image with super wide FOV from multiple images on the same XY plane.

Laser AF (option)

a low magnification.

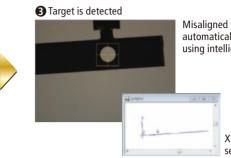
working

distance





Even when a workpiece is misaligned, the system automatically searches the target location based on the target image recorded in a teaching file, enabling accurate, automatic measurement by eliminating possible detection



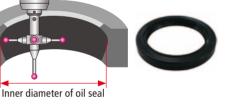
Misaligned target can be automatically detected using intelligent search

XY coordinate after searching the target

Touch probe (option)

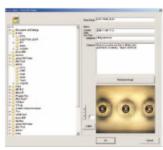
While the VMA-4540V is only for video measuring, the VMA-4540 is touch-probe ready and accommodates optional Renishaw® TP20 or TP200 touch probes. Touch probes provide measurements of 3D shapes parts where vision AF cannot be used, such as the inner diameter of an oil seal or the clearance angle of an indexable insert. The touch probe offsets from the optical axis, but works coaxially in the same XYZ coordinate system as the optical axis using iNEXIV VMA TP AutoMeasure software.



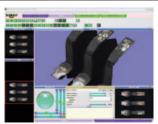




Clearance angle of inse



Teaching file selection with interactive guides



NEXIV EDF/Stitching Express