KEYENCE

Image Dimension Measurement System

IM-8000 Series

Triple the Detection Performance

INSTANT MEASUREMENT

NEW

Perform a Complete Set of Measurements With Just One Touch of a Button

Topic 1

Exceptional Edge Detection Capability

20-megapixel CMOS, three times more than conventional systems

×

New algorithm for stable edge detection

Topic 2

Simultaneous Measurement of All Surfaces

Retention of horizontal orientation

×

360° multi-surface measurement with a rotary unit

Image Dimension
Measurement System
IM-8000 Series

IM-8000 Series Automation Substantially Reduces Measurement Time

Simultaneous Measurements Performed in Seconds

Measurements on up to 300 dimensions can be completed in seconds, greatly reducing the resources spent on measurement work.

Intuitive Interface That Anyone Can Use

Now, any operator can take accurate measurements; Simply press the ‘Measure’ button to measure all the specified dimensions.

Measure Small, Large, and Three-dimensional Parts

The rotary unit coupled with advanced detection capability supports a wide range of shapes. Three-dimensional parts can be precisely measured.

Before

Conventional Measurement Tools

SLOW

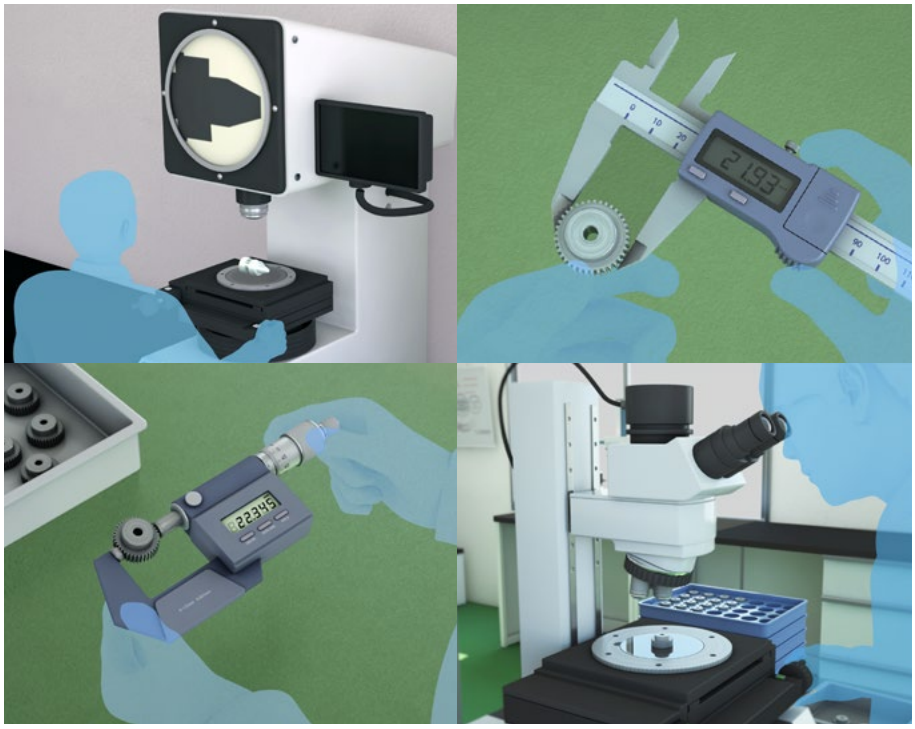
- Adjusting complex fixtures for part placement and datum setup is time consuming
- Increasing the number of parts or measurement points can mean an exponential increase in required time
- Data management and creating inspection reports can be tedious

INCONSISTENT

- Differences in the way the tool is used can result in inconsistent values
- Changes in focus by different operators result in inconsistent values
- Measurements rely heavily on operator judgement and experience

COMPLICATED

- Learning how to operate the measuring instrument takes time
- Dimensions requiring virtual lines or points add a layer of complexity
- Measurements can only be performed by trained operators



After

The IM-8000 Series Solves These Problems

FAST

- No time consuming positioning work or datum setup required
- Measure up to 300 dimensions on up to 100 parts with the push of a button
- Automatically saves measurement data and creates inspection reports

CONSISTENT

- Automatically identifies measurement points, ensuring that the same measurement results are obtained each time
- Automated focus adjustment prevents inconsistent values
- The simple place-and-press operation means consistent measurement results regardless of the operator

EASY

- Easily set up measurements with just a few clicks
- Setting up virtual lines and points is just as simple
- No measurement expertise is required to measure parts

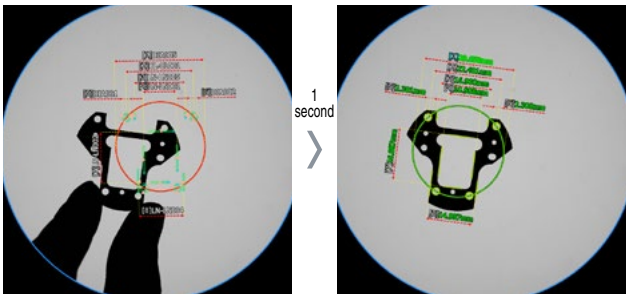
FAST

Measurement Performed in Seconds

NEW

Dimensional Measurement in as Little as One Second

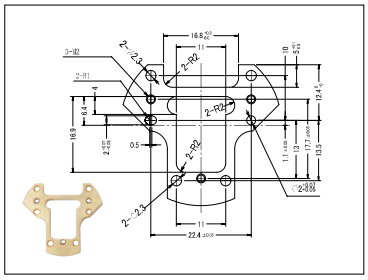
A new function enables instant measurement just by placing the parts on the stage. This feature greatly reduces production costs when the number of measurements is large.



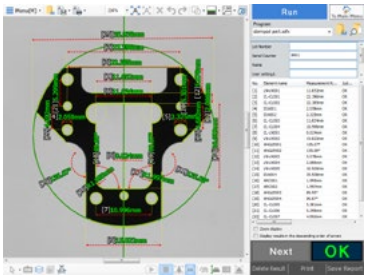
Parts placed on the stage are measured instantaneously.

Simultaneous Measurements on Multiple Parts

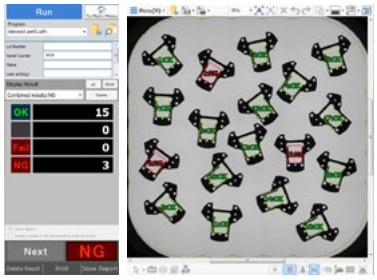
By preparing a program file with measurement points and conditions, up to 300 dimensions per part and up to 100 parts can be measured simultaneously. This function saves time and effort even with many parts and measurement points.



Drawing



Measurement result



Find Program Files Quickly

Just place the QR code printed on an inspection report on the stage to read the program file. This function ensures the correct file selection even when there are many file types.

CONSISTENT Eliminate Operator Error

Before

Positioning errors

Focus errors

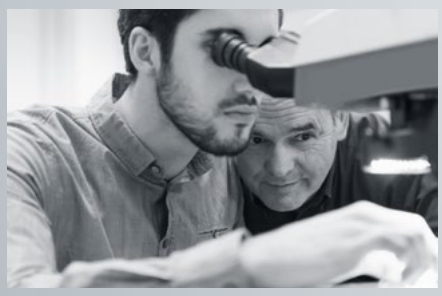
Skill level errors

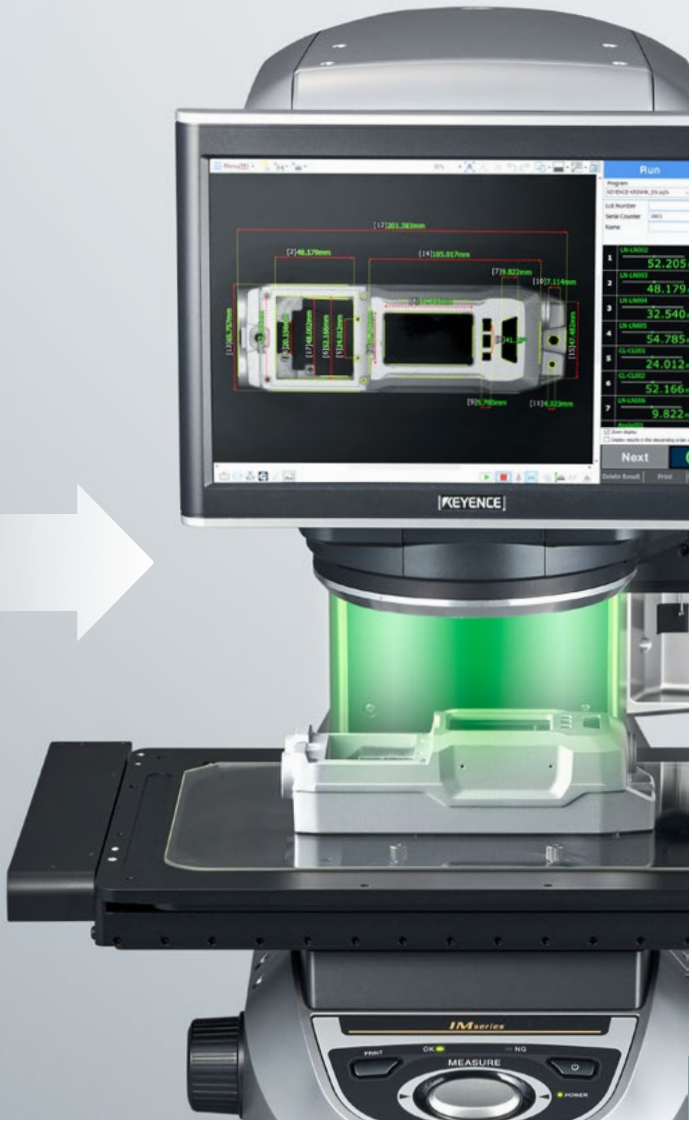
After

No positioning required

Automated focus adjustment

Consistent results regardless of operator

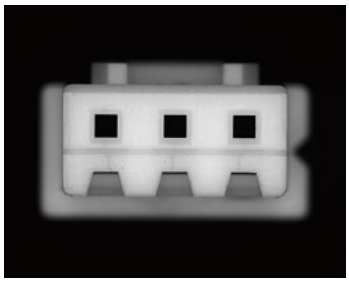




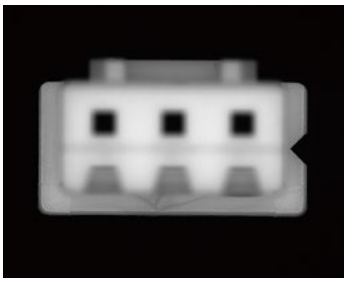
Automated Focus Adjustments

The IM-8000 is equipped with a specifically designed optical lens with a large depth of field. It can automatically bring measurement points into focus. This is useful for parts with uneven surfaces, where all of the measurement areas cannot be brought into focus at the same time.

Parts with large height differences

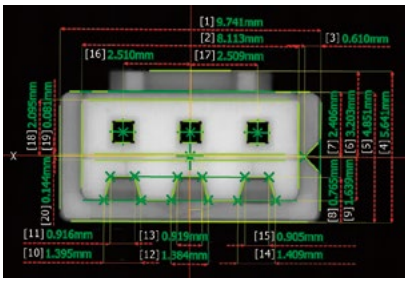


Only the upper edges are in focus.



Only the lower edges are in focus.

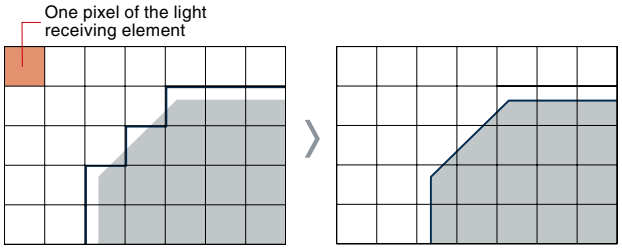
The focus is automatically adjusted for measurement



Automatic Edge Detection

Sub-pixel processing

By splitting each pixel into 100 or more sub-pixels, the IM-8000 is able to provide a wide field of view while maintaining its high-precision measurement capability.

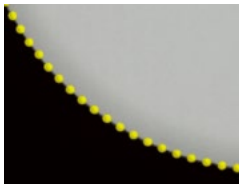


Without sub-pixel processing

With sub-pixel processing

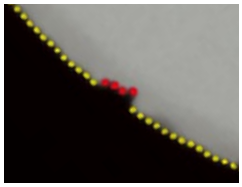
Shape processing

Lines and circles are detected using least square fitting of 100 or more* detection points.
** There may be less than 100 points depending on the shape.*



Automatic identification of burrs and chips

Burrs and chips found in the detection area are automatically recognised and removed from the fitting process as abnormal locations. It is also possible to set the system to interrupt measurement when burrs or chips are found that are larger than a particular threshold.

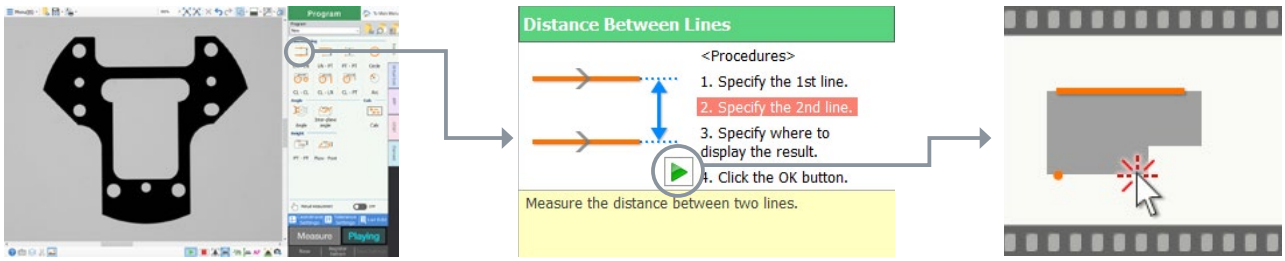


EASY

Easily Set up Measurements with the Click of a Mouse

Intuitive Menus and Built-in Procedures Manual

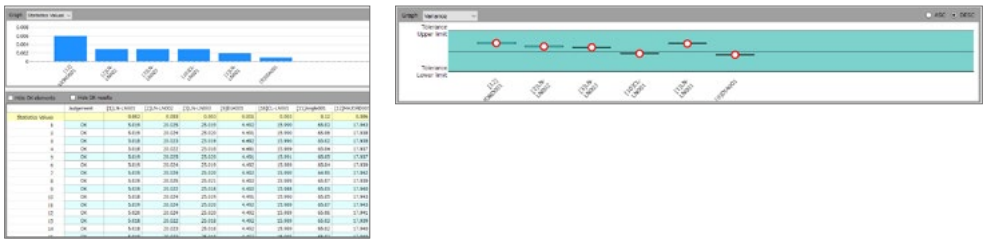
The programming procedure is very intuitive. While viewing a part, simply select what points, lines, circles, virtual lines, and other features to measure. Animations showing the operation methods and a procedures manual showing operation flow are provided for each menu. These on-screen procedures let anyone configure program settings with confidence.



NEW

Automated Diagnostic Function

This new function diagnoses the stability of each measurement point during programming, displaying variations in measured items in a way that is easy to understand. This makes it easier and faster to create program settings.



Errors can be detected before measurement.

Automatic Measurement Function

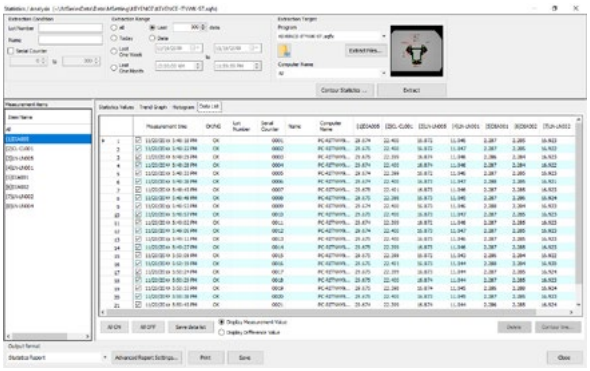
The automatic measurement function enables measurement of a single part or a small quantity of mixed parts with no setup.
This function can automatically detect measurement points on parts up to 300 × 200 mm, even if the parts have not been measured before.

EASY

Automatic Inspection Reports

Automatically Calculate Cp and Cpk

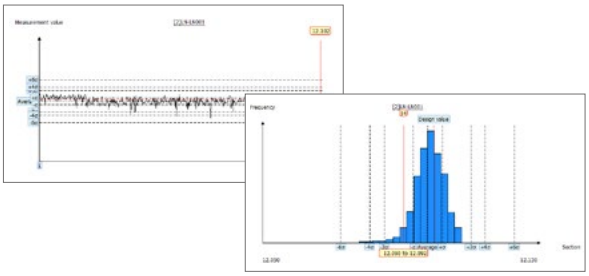
The system automatically calculates and displays key statistical values for each measurement item including OKs, NGs, maximum point, minimum point, average, (σ, 3σ, 6σ) Cp, Cpk, and others. Information such as the lot number and measurement date and time is also saved automatically, making it easy to search for measurement results.



Immediate Feedback on Trends and Variations

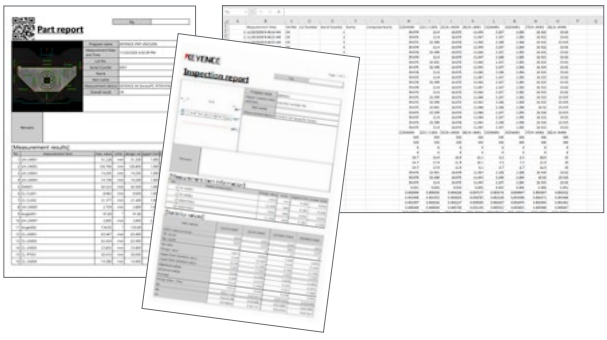
Built-in trend graph and histogram functions allow for verification of trends and variations such as those detailed below in each measured item using graphs.

- Measured values are gradually decreasing
- Variation has increased
- Measured values are fluctuating in a cyclical manner



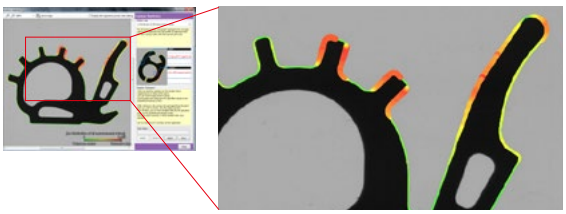
Complete Inspection Reports in Seconds

Inspection and statistical reports can be created with the click of a button. There is no need to transfer data or manually enter it into a PC. Measurement results can easily be transferred via a USB device or a LAN connection and imported into spreadsheet software on a PC for analysis.



Profiles Are Also Automatically Aggregated

Records not only the measurement results, but also the profiles of measured parts. This allows for changes in appearance to be visualised in a way that cannot be achieved using numeric values alone.

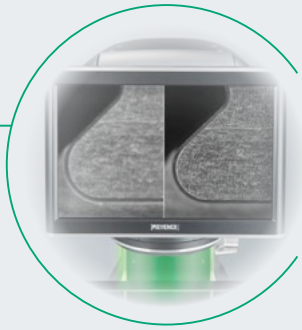



Run
Next
OK
KEYENCE
IM series
MEASURE
PRINT
POWER

Advanced Technologies for Complete Measurements

Large Diameter Telecentric Lenses

No extreme focus adjustment or positioning required



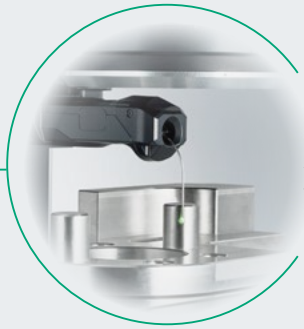
NEW

Ultra-high-definition CMOS

20-megapixel CMOS and new edge detection algorithm for three times the detection performance

Programmable Ring-illumination Unit

Accurately extracts edges with optimal lighting conditions

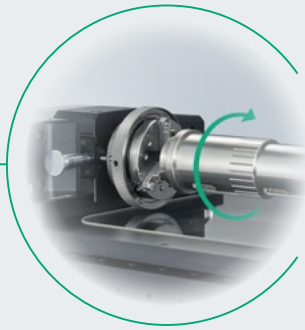


Light Probe Unit

A light probe that can measure features at specific heights

Contact Height Measurement Unit

Simultaneous Z-direction measurement



NEW

360° Rotary Unit

Simultaneous measurement of all surfaces of a 3D part

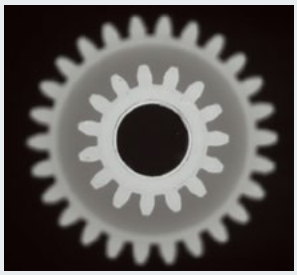
Large High-speed/ High-precision Stage

Measurement area of up to 300 × 200 mm

No Difficult Focus Adjustment or Positioning Required

Clear Focus Regardless of Height Differences

The IM-8000 is equipped with a specially designed lens with a large depth of field. This ensures accurate measurements despite height differences on the part.

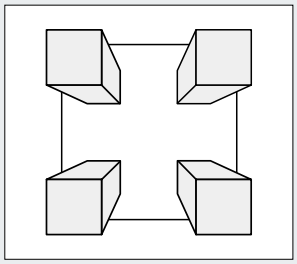


Zoom lens

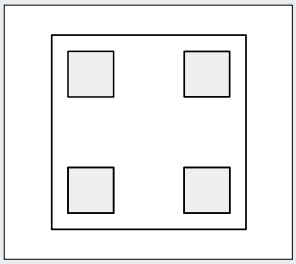
IM-8000

Apparent Feature Size Not Affected by Height Differences

The IM-8000 is equipped with a telecentric optical system, which means that the image is not affected by the height differences of the part. Allowing it to perform accurate measurements of parts with uneven surfaces.



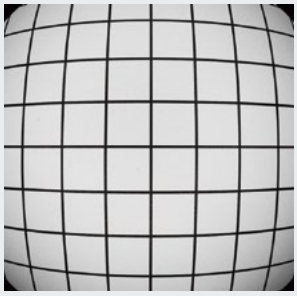
Zoom lens



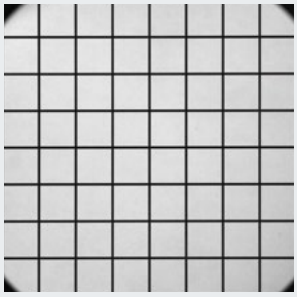
IM-8000

Reduced Distortion Throughout the Entire Field of View

The IM-8000 is equipped with a low distortion lens designed to not only minimise distortion near the centre but also at the outer reaches of the field of view, so parts can be measured accurately regardless of their location on the stage.



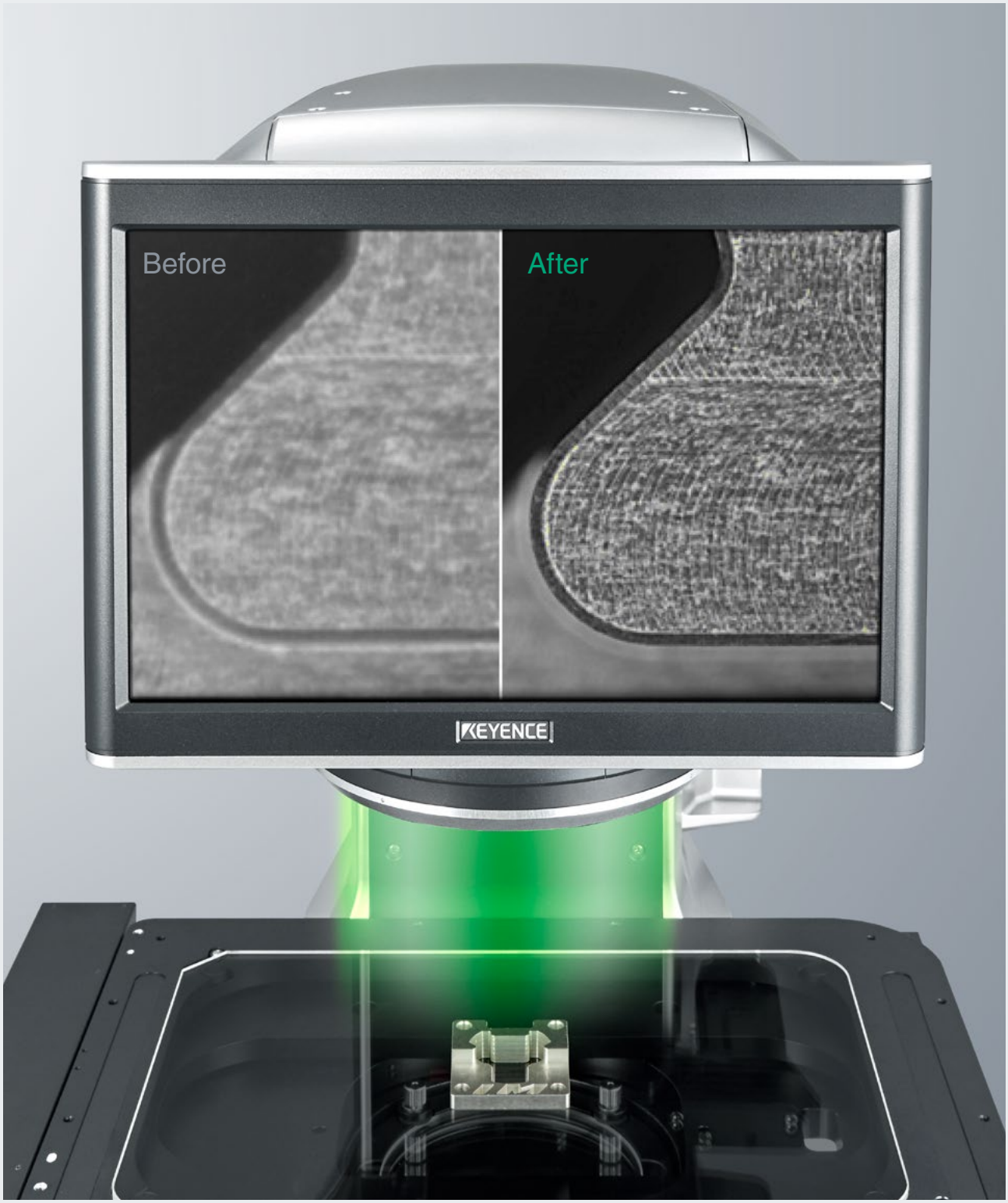
Zoom lens



IM-8000

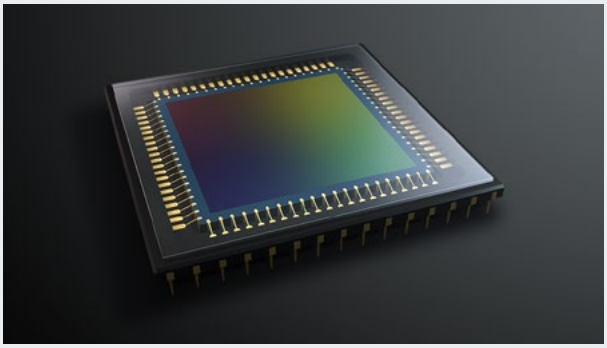
Ultra-high-definition CMOS

20-megapixel CMOS and New Edge Detection Algorithm for Three Times the Detection Performance



Ultra-high-definition 20-megapixel CMOS

This CMOS sensor provides the optimal lens resolution and has three times the number of pixels of a conventional system, visualising minute edges that were difficult to see until now.



Ultra-high-definition 20-megapixel CMOS sensor

Dual Camera Simultaneous Measurement Optical System

With a single setting, it is possible to switch between the 100 mm diameter wide-field camera and the 25 mm square high-precision camera. The former can be used to capture the outer dimensions and overall shape of the part quickly, and the latter can be used to measure microscopic shapes and points requiring high precision, reducing measurement time and improving precision.

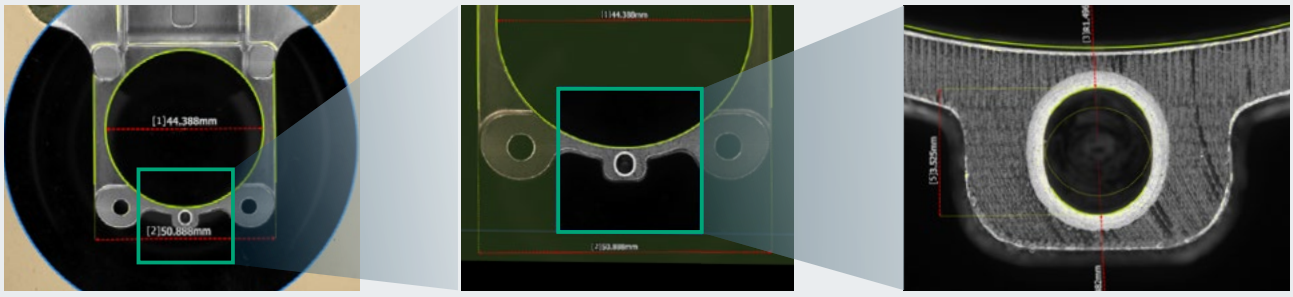


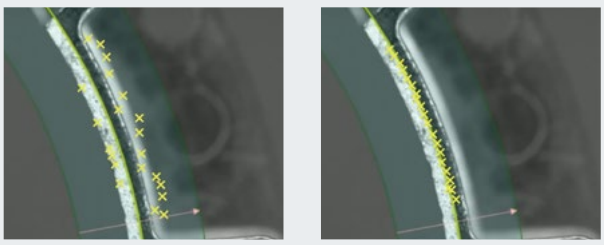
Image captured with the wide-field camera

Using the high-precision camera only where necessary

Zoomed image captured with the high-precision camera

Powerful Edge Detection Engine

This new engine can stably detect edges with weak light/dark contrast. KEYENCE's newly developed algorithm identifies edges from the surrounding edge information, enabling measurement with higher precision.

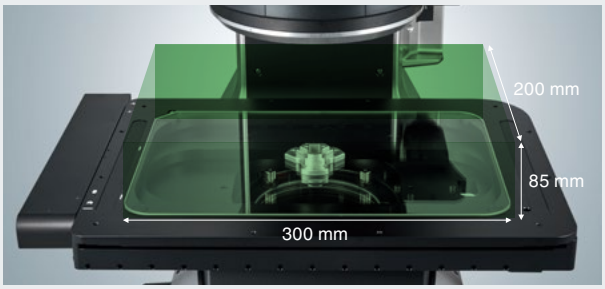


Large High-speed/High-precision Stage

Measurement Area of up to 300 × 200 mm

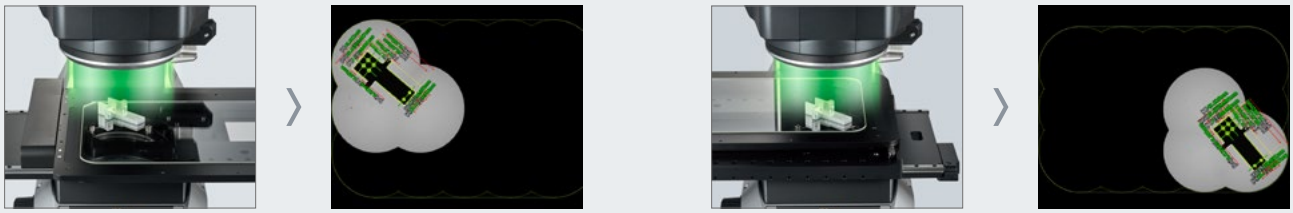
300 × 200 mm Field of View, Twice the Measurement Speed

Parts up to 300 × 200 mm across and up to 85 mm high can be measured. The new design minimises the resistance between the motor and the feed screw, narrowing the movement pitch and allowing for stable measurement at high speed without having to fix parts in place.



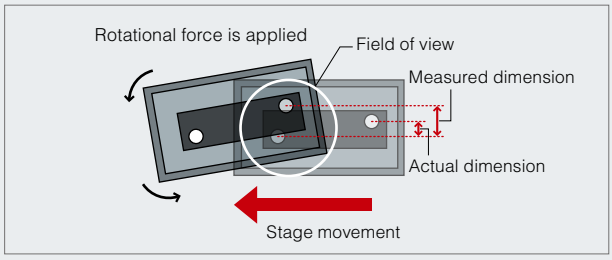
Automatic Search for Parts

The IM-8000 searches for and measures parts anywhere on the stage. There is no need to place parts directly under the lens. The high-speed motion of the stage over a wide area ensures that the part will be found and measured.

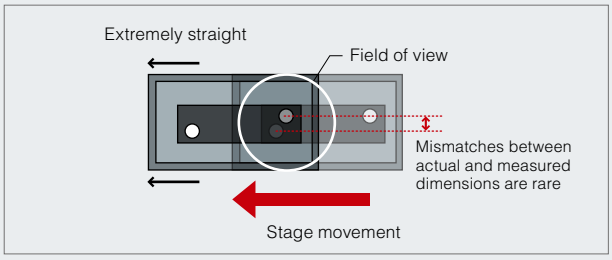


Drive System Enabling High Precision

By utilising precision cross-roller bearings, we are able to offer high accuracy while maintaining increased durability. This eliminates errors due to stage movement.

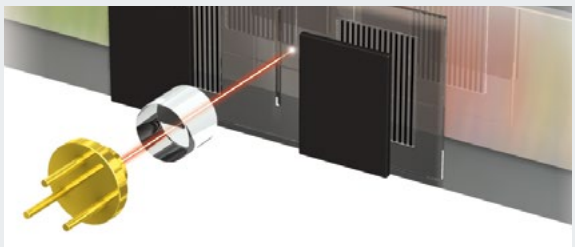


Without adjustment



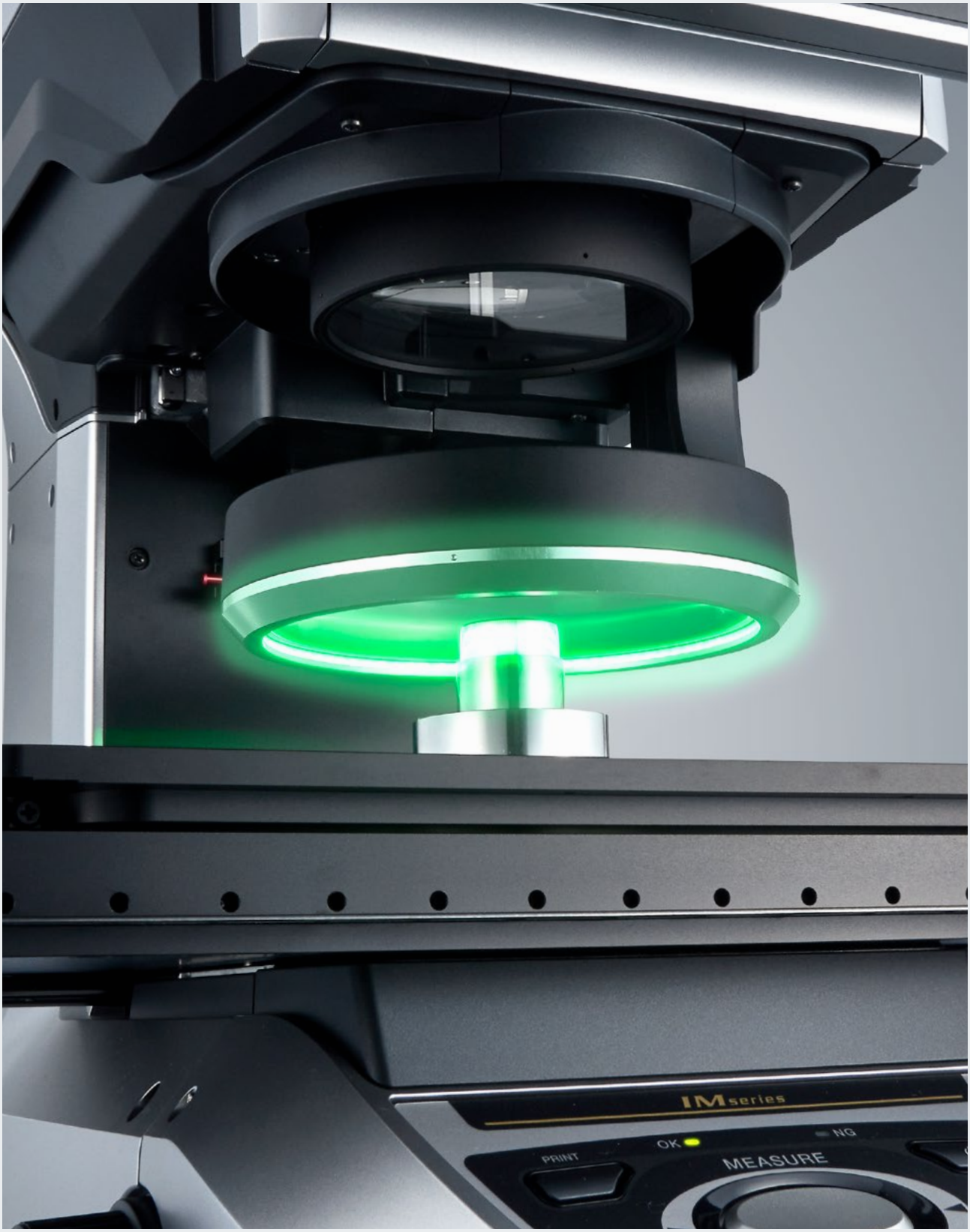
IM-8000

A high-precision linear scale designed specifically for the IM-8000 allows the stage movement to be tracked in micron increments. This makes it possible to perform accurate measurements, even on large parts.



Programmable Ring-illumination Unit

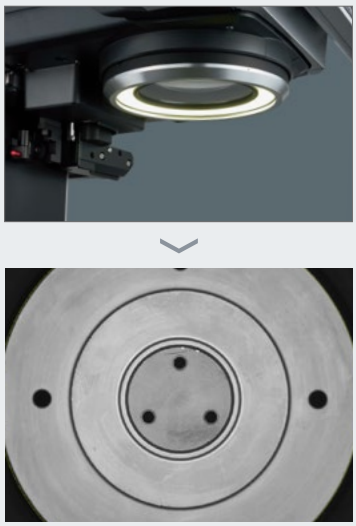
Accurately Extract Edges with Optimal Lighting Conditions



Multiple Illumination Units in One

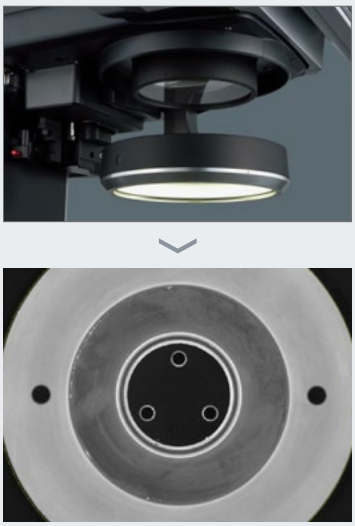
The programmable ring-illumination unit integrates multiple ring illumination functions into a single unit. This allows a wide variety of features to be inspected without the need for lighting changeover, maximising efficiency.

Multi-angle Illumination, High



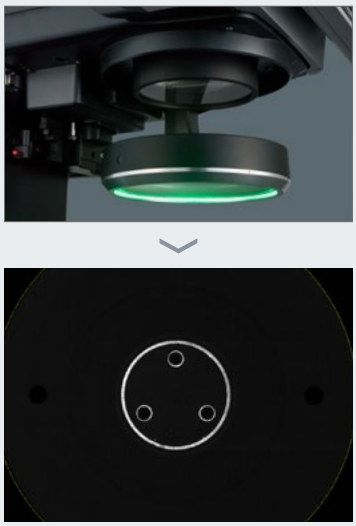
Light strikes all areas of the part uniformly

Multi-angle Illumination, Low



There is contrast between different height elevations

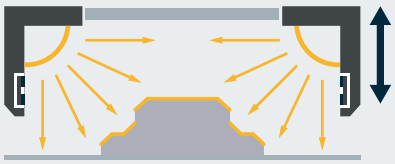
Slit Ring Illumination



Contrast forms between the part and the edge of its outer circumference

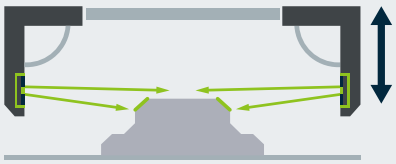
Programmable Ring-illumination Unit Mechanism

Cross section image with multi-angle illumination turned on



A wide area is illuminated. Placing the illumination unit at a high position illuminates the target evenly in its entirety. The lower the position, the greater the contrast in lighting due to height differences.

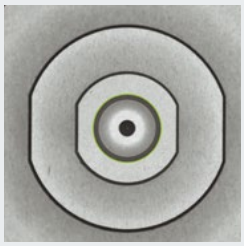
Cross section image with slit ring illumination turned on



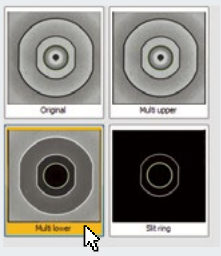
Narrow bands of light are projected horizontally. Place the illumination unit at the height of the edges to detect in order to create clear contrast at the desired location.

Automatically Finds the Optimal Lighting Settings

It is often difficult to determine the correct lighting settings for a given feature. The optimal lighting search function simplifies this process by showing you actual images using different lighting techniques so you can simply select the one you want. This means that even first time users can feel confident in their ability to use the instrument.



Select the feature to optimise

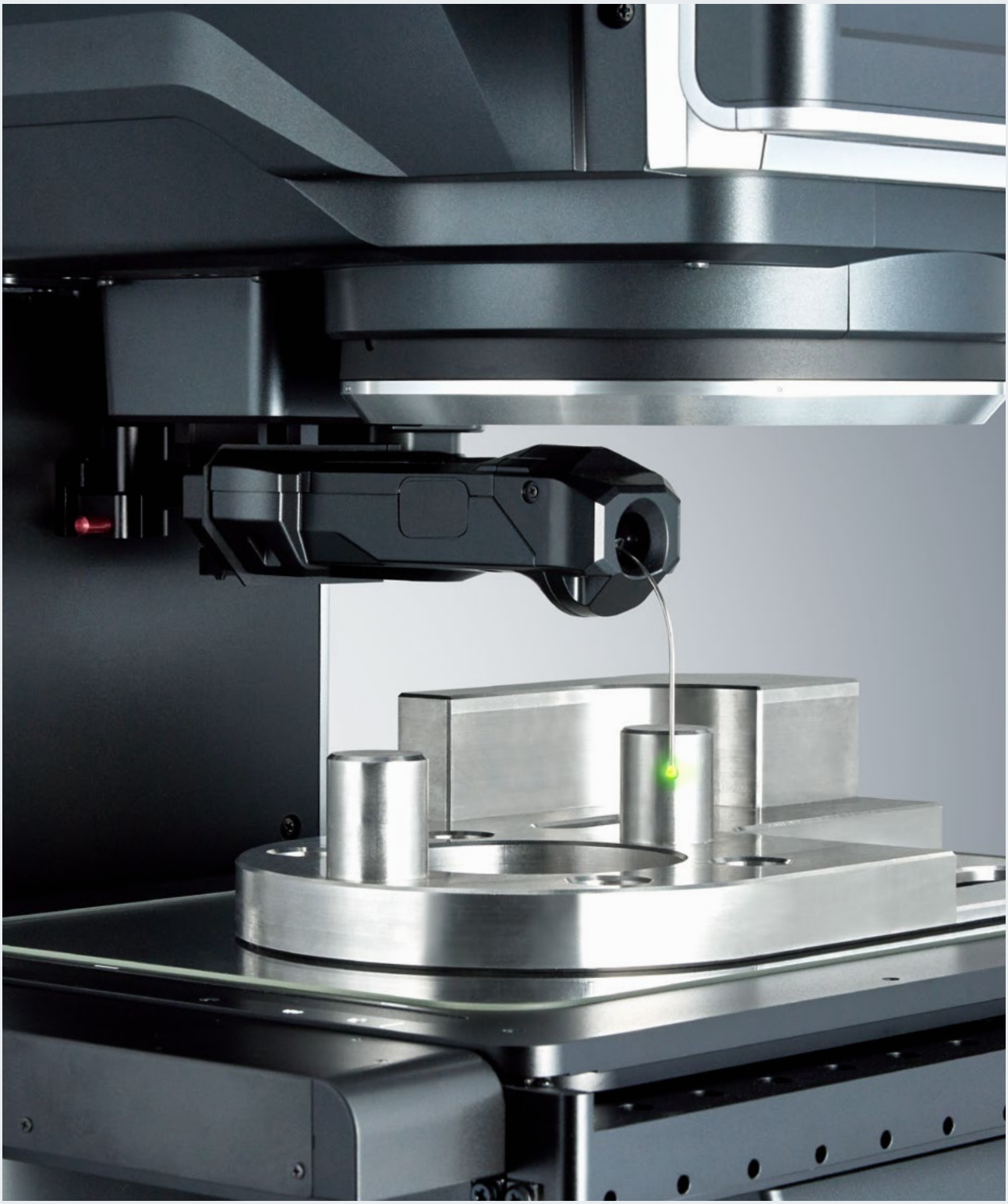


Select the settings from the automatically captured results

Measurements can be performed easily with the optimal settings

Light Probe Unit

A Light Probe That Can Measure Features at Specific Heights

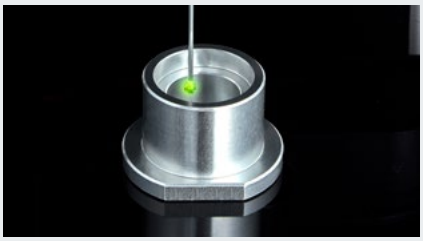


Accurately Measure Dimensions that were Previously Impossible with Vision Systems

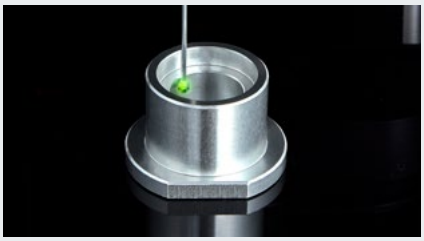
The newly developed light probe unit allows for easy and accurate measurement even on parts with deep-set shapes, rounded corners, and other shapes and processing states that made them difficult to detect for conventional systems using images.

New Technology Accurately Measures Sides not Visible to the Camera

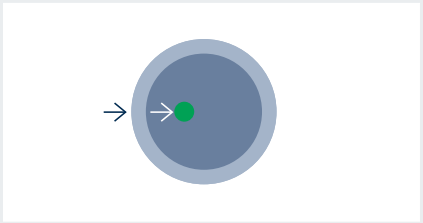
1. A glowing sphere is brought into contact with the desired point on the part
2. A camera is used to recognise the motion of the probe and measure the distance



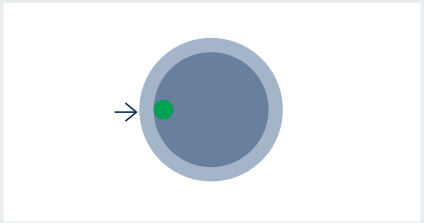
The part is moved to the desired point.



The camera detects the contact of the light part



As viewed from above



As viewed from above

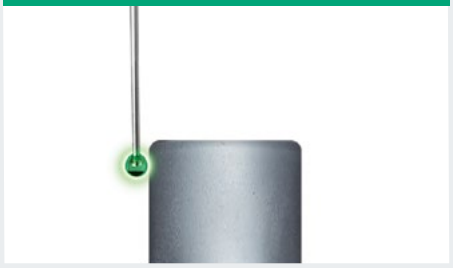
Extremely Low Force Measurement of Small and Lightweight Parts

Conventional contact-type measurement systems use a strong measuring force that can cause misalignment due to the pressure applied to small and lightweight parts. The light probe unit uses an extremely low measuring force of 0.015 N to accurately take measurements without the hassle or cost of fixturing parts. This also eliminates the concerns about deformation when soft parts are measured.

Conventional probe

Pressure moves the part

Light probe



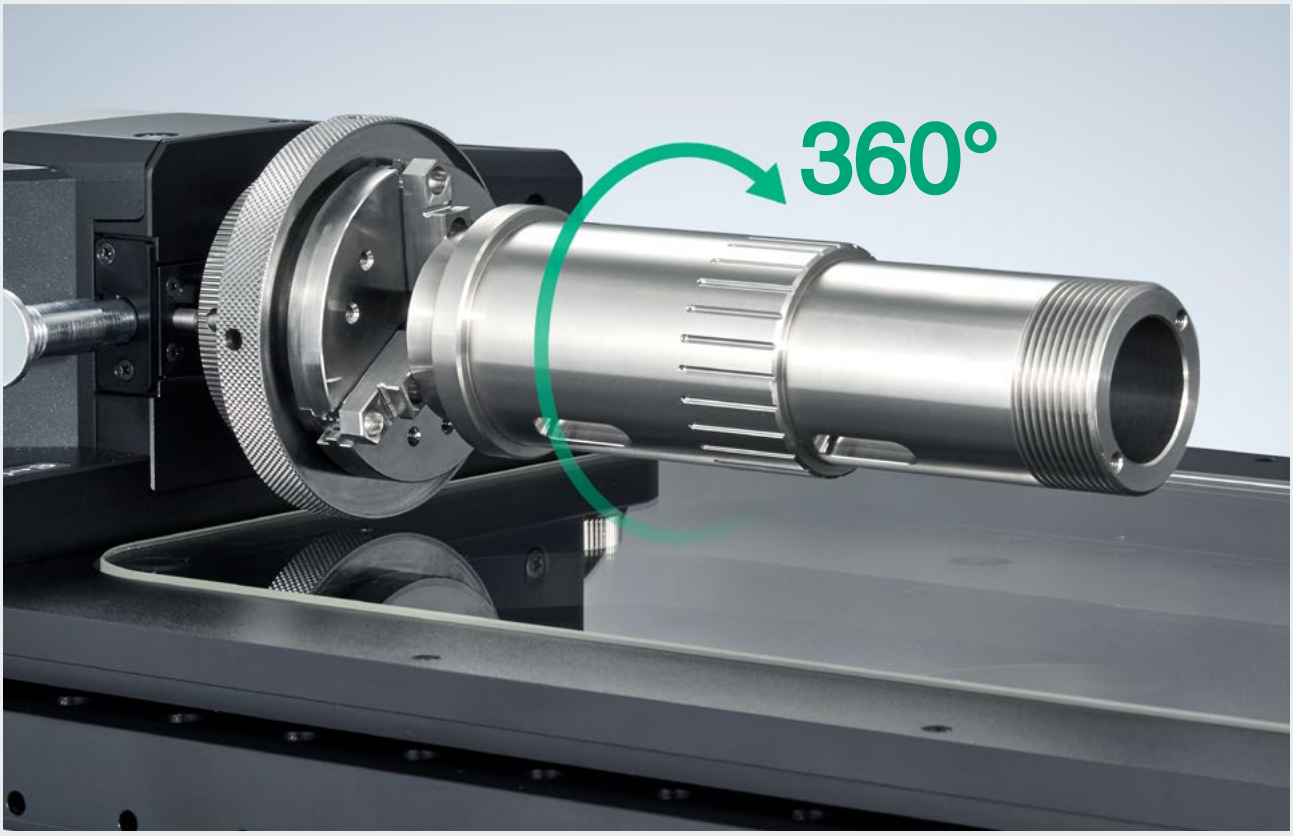
Since measuring pressure is extremely low, detection is possible without affecting the part

Extremely low measuring pressure

0.015 N

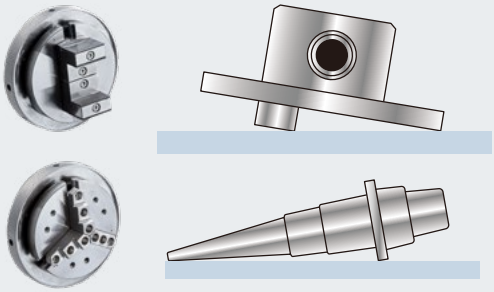
360° Rotary Unit IM-RU1

Simultaneous Measurement of All Surfaces of a Three-dimensional Part



Easy Part Attachment

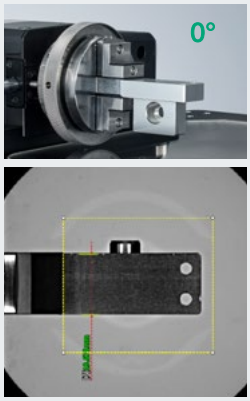
Two types of chucks are provided, making it easy to attach parts of various shapes; Whether they are round or square, large or small. This means that no specialised jigs are required.



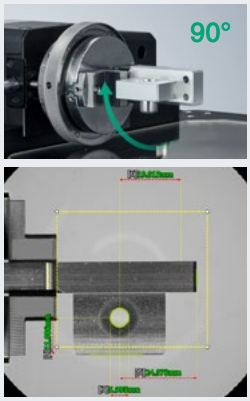
No need to prepare jigs for parts for which horizontal orientation is difficult to maintain.

No Need to Manually Change the Part Orientation

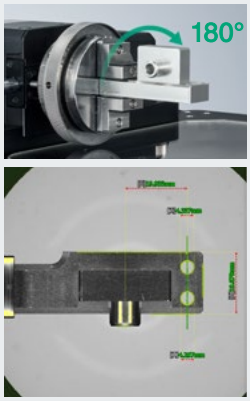
Even for parts manufactured from multiple directions, all the surfaces in the rotation direction can be measured with a single operation, eliminating the need to create multiple settings and reattaching the part.



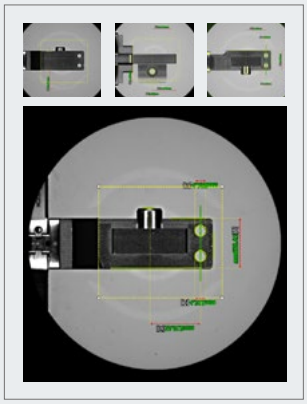
0° position



Rotated by 90° and measured



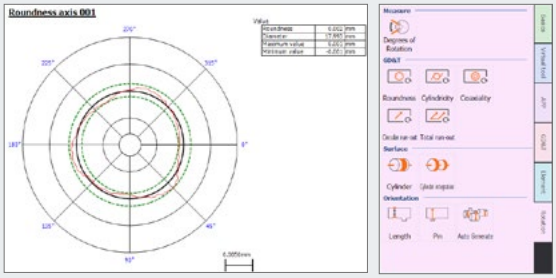
Rotated by 180° and measured



Measurement of multiple surfaces with a single setting

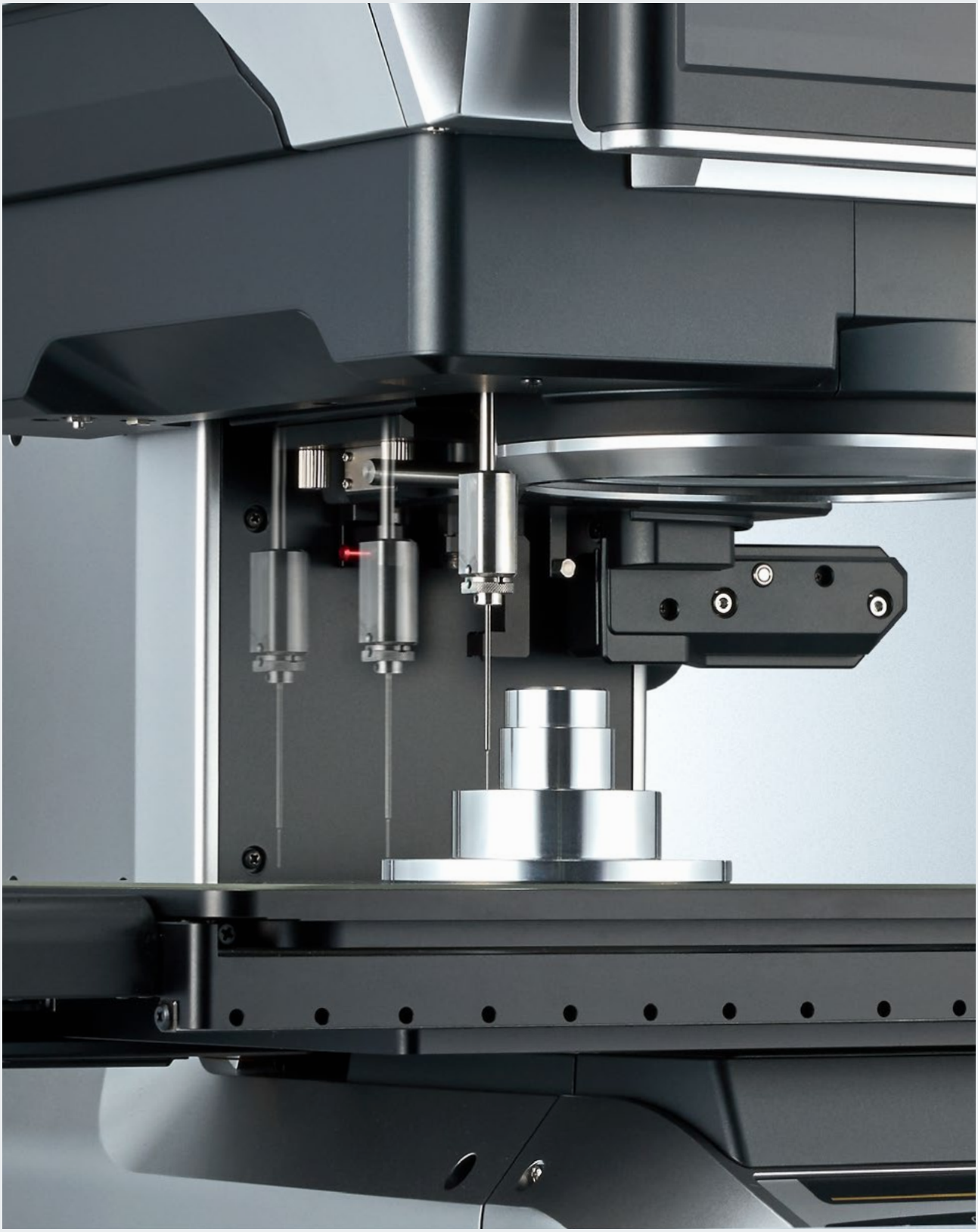
Circularity and Run-out Measurements

Specialised machines were previously required for these measurements. With the IM-8000, the results are obtained not by tracing parts with a probe but by scanning all the visible surfaces, enabling easier and more accurate measurement.



Contact Height Measurement Unit IM-8030T

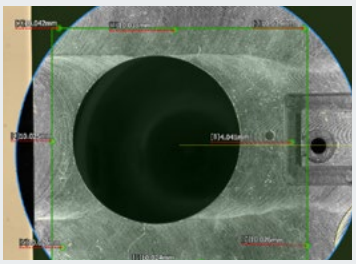
Simultaneous Z-direction Measurement



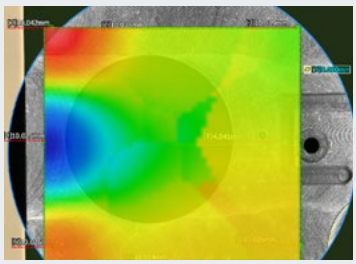
Place and Press Height Measurement

This unit allows for height measurements such as thickness, height differences, and flatness. Centralised management of the measurement results contributes to overall improvement in efficiency of measurement tasks.

The probe detects and measures the same position each time



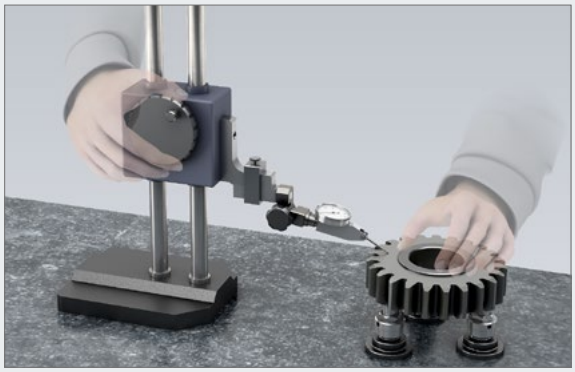
Display height measurement results



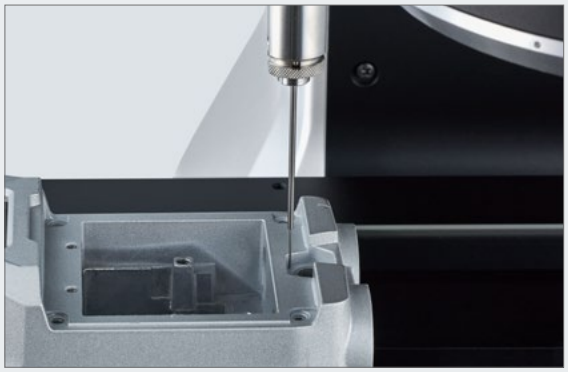
Flatness can also be measured

Stable Measurement without Operator Errors

By linking with the pattern search function, the system can automatically detect any pre-specified height/depth dimensions. The same point is measured with the same force each time, so measurements are stable, with fewer errors than when work is performed by operators.



Conventional: It is difficult and time consuming for an operator to use a dial gauge, and errors can occur



Even narrow locations are detected and measured automatically

		Height Measurement Unit
Measurement range		0 to 75 mm
Measuring force		0.3 N
Measurement accuracy (XY)		±0.2 mm*1
Minimum display unit		1 µm
Measurable area (XY)	Wide-field measurement mode	145 × 95 mm
	High-precision measurement mode	107.5 × 95 mm
Repeatability		±2 µm*2
Measurement accuracy		±7.5 µm*3

*1 Operating ambient temperature: +23°C ±1°C.
*2 With a maximum measurement height of 30 mm or less. ±3 µm when maximum measurement height is between 30 and 75 mm.
*3 Standard glass, with a maximum measurement height of 30 mm or less. ±9.5 µm when maximum measurement height is between 30 and 75 mm.

Network Functions and Software

CAD Import Module **Optional: IM-H3C**

The data required for measurements can be acquired from CAD drawing data in DXF format. Even when a part is not on hand, it is still possible to quickly create measurement program files.
* Measurement setup editor (IM-H3EE) is also required.

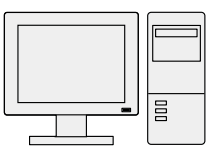
DXF

Setting file

Measurement result

Measurement Setup Editor **Optional: IM-H3EE**

A PC can be used to add or change measurement locations in a program file created by the IM-8000. Settings can be revised even when away from the device, which makes it possible to correct settings and print measurement results remotely.



PC server

Setting file

Data Transfer over a LAN Connection

With a LAN connection, it is easy to transfer a program file created on an IM-8000 system or a PC to another IM-8000 system in a different location.

Data Transfer Software **Optional: IM-H1T**

IM-8000 measurement results can be automatically transferred to specific cells in spreadsheet software on a specified PC. Measurement data can be entered to match predetermined inspection sheet formats.

PC software operating environment

Supported OS	Windows 10 Home/Pro/Enterprise (64-bit version)
Required free space on hard disk	30 GB or more

· Windows® is a trademark or registered trademark of Microsoft Corporation in the United States and other countries.
· The formal name of Windows is Microsoft Windows® operating system.

Shop Floor Ready Performance and Reliability

Traceability System Diagram

The reference scales used for manufacturing, inspection, and calibration conform to the reference scale of JCSS accredited calibration laboratories to establish traceability back to the national standard.

International standard
National Metrology Institute of Japan (NMIJ) of National Institute of Advanced Industrial Science and Technology
JCSS accredited calibration laboratory
Reference scale
Secondary standard
Precision coordinate measuring instrument
Common standard
Reference scale
Measuring instrument to be calibrated
IM-8000 image dimension measurement system

Calibration Certificate

Calibration certificates are issued after inspections and calibrations are performed. Calibration certificates can also be issued after inspections and calibrations are performed by KEYENCE after product installation.

Calibration certificates, traceability system diagrams, and inspection reports issued

Adjustment Chart **Optional: OP-88552**

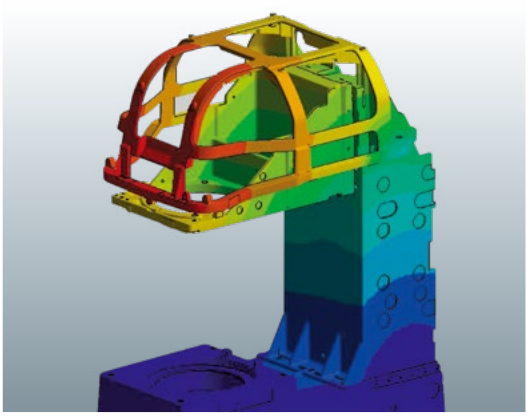
You can adjust the IM-8000 by installing the specialised scale, which is useful when changing its installation location. A calibration certificate can also be issued for the specialised scale, providing peace of mind for measurement management.

Built-in Temperature Sensor

The case features a built-in temperature sensor, which allows the IM-8000 to be installed in any location. The system uses temperature compensation to nullify the effects of the surrounding environment, eliminating the need for air temperature management.

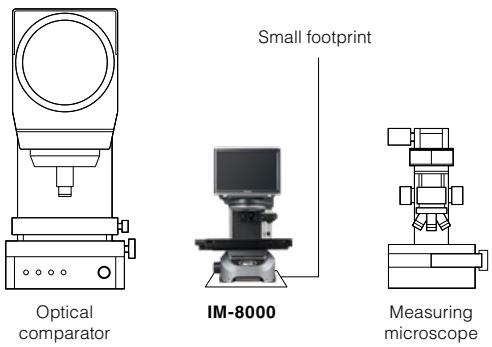
Highly Rigid Body

The highly rigid body enables this product to be reinstalled in a different location due to layout changes, etc. The design was optimised using topological and strength analysis, allowing for use in your preferred location or where productivity improvements can be made.



Space-saving Design

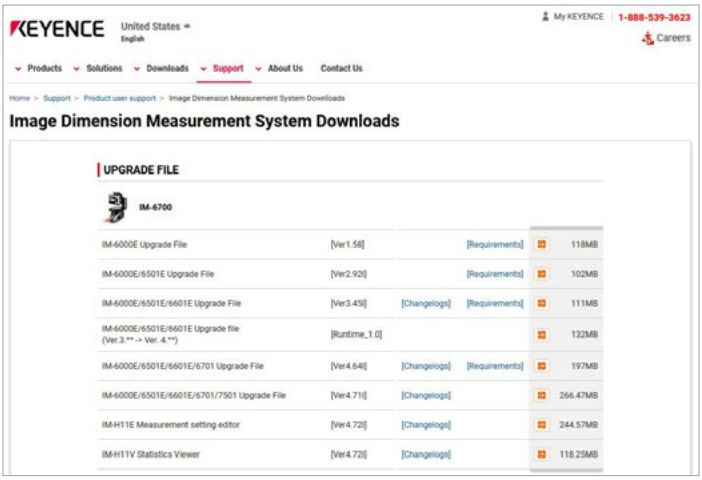
By reducing the size of the main unit and including an integrated monitor, the installation space has been significantly reduced. This greatly increases the number of places where this product can be installed. Although compact, the larger monitor makes the screen easier to view.



After-sales Support System

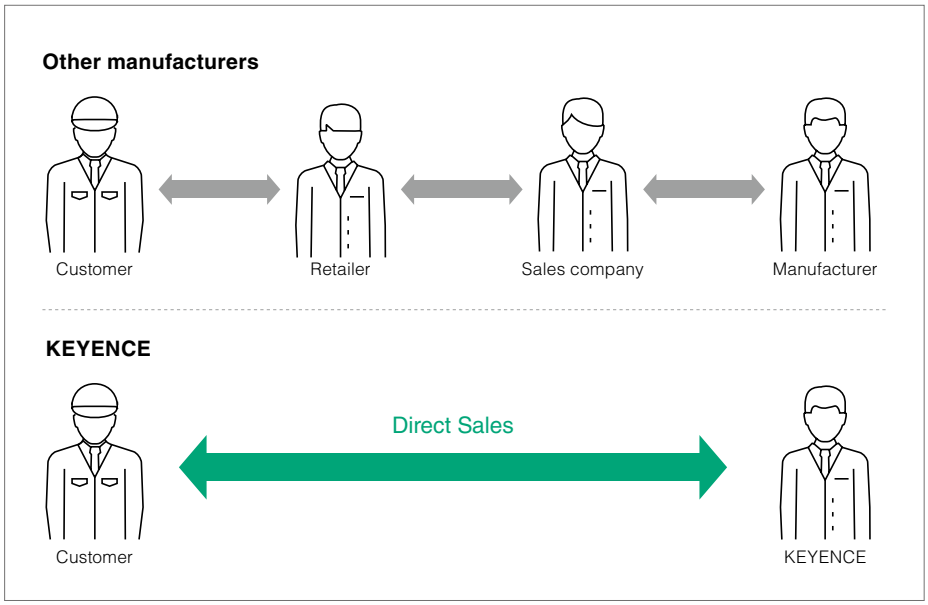
Free Software Updates

Update your software to the latest version directly from KEYENCE's dedicated support website.



Direct Sales System Provides Quality Personalised Support

Our comprehensive after-sales support connects you directly to our technically trained sales engineers. You will get the personalised support you need immediately without having to deal with sales companies or retailers. You can be confident knowing that when you want to consult with us, we will be there.



Comprehensive Coverage Around the World & Global Support System

International Direct Sales System

KEYENCE international sites are staffed by Japanese and local technical personnel, ensuring that we can meet our customers' needs. We support our customers by sharing information between KEYENCE personnel located internationally and in Japan.

Direct sales by manufacturer

Selection → Installation → After-sales support

Consistent support by sales engineers

Support for Multiple Languages

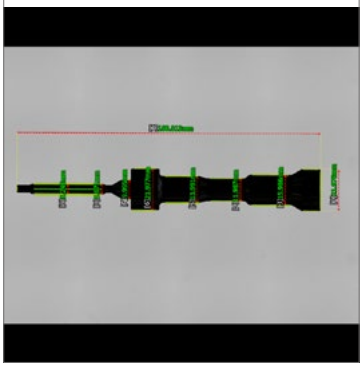
In addition to the system's control screen, manuals and other documentation are also provided in a wide range of languages. Your local staff can easily use KEYENCE's products after they are installed at international manufacturing locations.

Supported languages

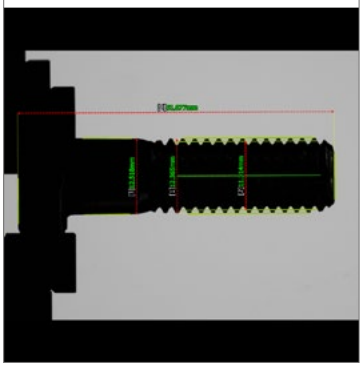
English	German	French
Italian	Simplified Chinese	Traditional Chinese
Spanish	Thai	Korean
Czech	Polish	

Application Examples

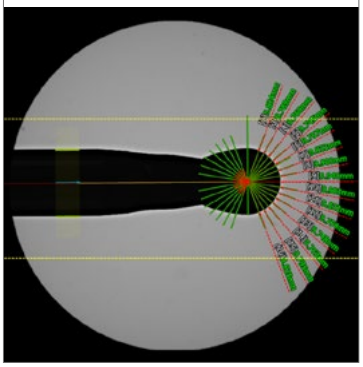
Lathe processed part



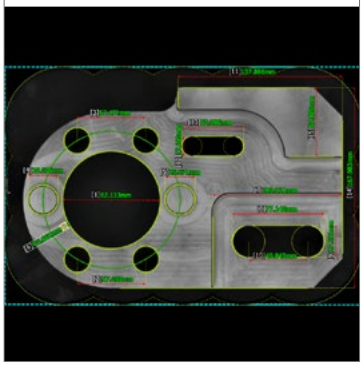
Screw and bolt



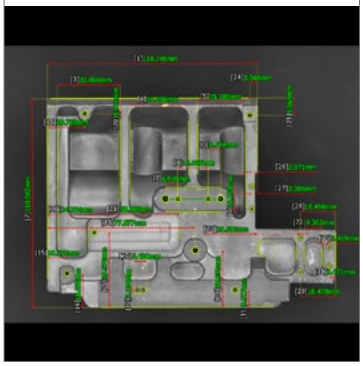
Tool



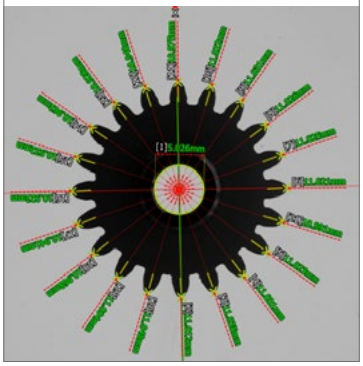
Machined part



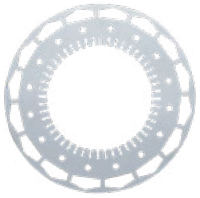
Die cast part

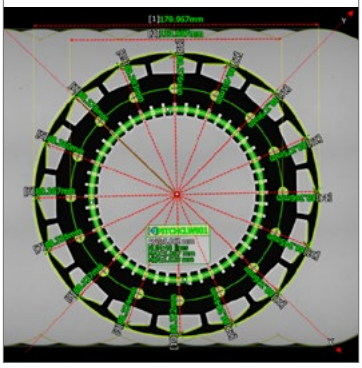


Gear

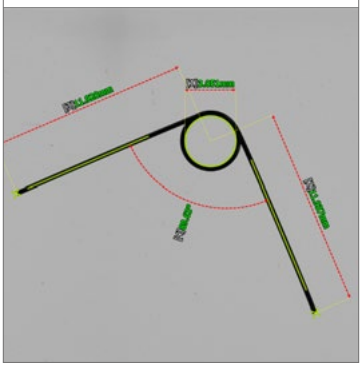


Pressed part

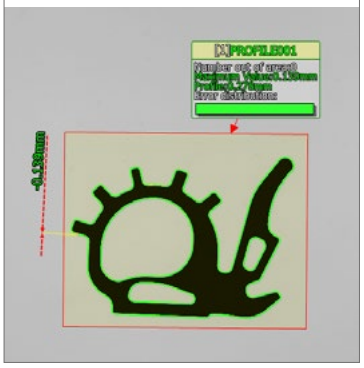




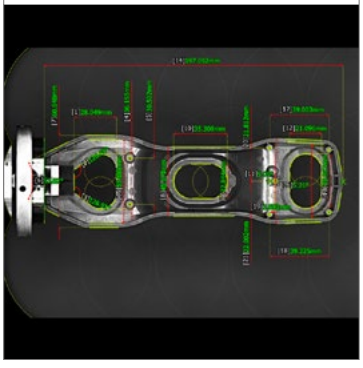
Spring



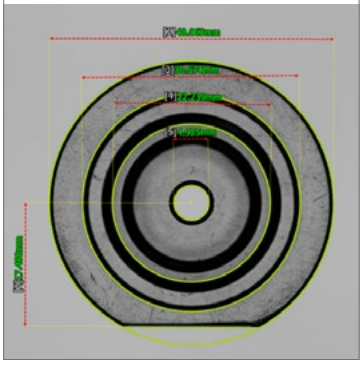
Extrusion moulded part



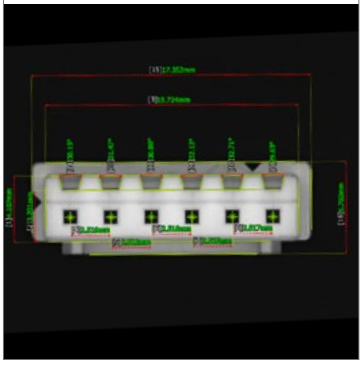
Injection moulded part



Transparent part



Connector



IM-8000 Series Application Examples

For a Variety of Inspection Needs

Inspections of Prototypes and First Off-tool Parts

- Improvement of productivity through reductions in launch periods
- Measurement that does not depend on the inspector's experience level
- Measurement based on traceability to international standards

In-process Inspections of Samples and Parts

- Improvement of equipment availability through reductions in setup time
- Improvement of yield rates through better accuracy in equipment adjustment
- Symptom management within processes

Pre-shipping Inspections

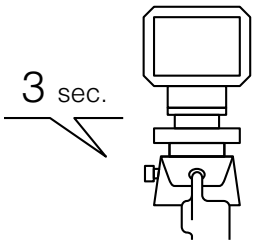
- Allows for shipping inspections with shortened delivery schedules
- Reduction of the work required to create inspection report tables
- Reduction of training time and labour costs associated with inspectors

Incoming Inspections

- Can manage acceptance inspections for multiple types with constant standards
- Reduction of the risk of defects even when the quantity of inspections is increased
- Improved quality through measurement of previously uninspected points

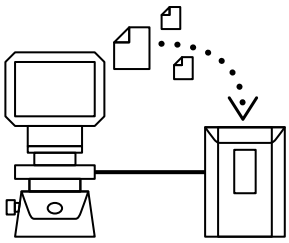
Six Advantages That Improve Work Efficiency

1. Reduction of Inspection Time



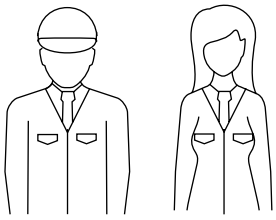
Reductions in inspection time can improve manufacturing efficiency and reduce cost.

2. Reduction of Recording Time



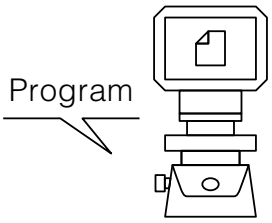
Reductions in the work required to record inspection data can lead to reductions in data management cost.

3. Operators Other Than Inspectors Can Also Perform Inspections



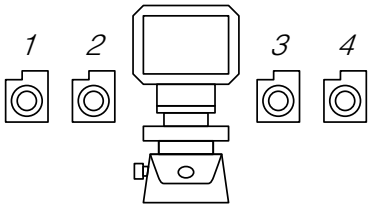
Reductions in the workload placed on the quality department can also lead to improvements in equipment availability.

4. Consistent Inspection Standards



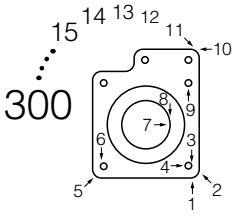
The use of consistent inspection standards enables manufacturing with more stable quality levels.

5. Increased Quantity of Inspections



Since it is easy to increase the quantity of inspections, the risk of defects is decreased.

6. Increased Number of Dimensions



Since it is possible to measure uninspected dimensions without increasing the workload, this leads to improvements in quality.

System Configuration

IM-8000
Controller

IM-8005
ø100 mm stage
Model incorporating fixed ring-illumination unit

IM-8020
200 mm square stage
Model incorporating programmable ring-illumination/ light probe unit

IM-8030
300 × 200 mm square stage
Wide stage model incorporating programmable ring-illumination/ light probe unit

Optional Accessories

Rotary Unit

IM-RU1
Rotary unit

External Lighting

IM-DXW12NT
Coaxial illumination

Precision Fixturing Base

OP-87761
Precision fixturing base
(for long measurement targets)

OP-87501
Precision fixturing base

PC Software

IM-H3EE
IM measurement setup editor

IM-H3C
CAD import module

IM-H1T
IM data transfer software

Stage Glass

OP-86985[*1]
Stage glass
for IM-8005

OP-86986
Sapphire glass
for IM-8005

OP-88179[*2]
Stage glass
for IM-8020

IM-G23
Stage glass (pack of three)
for IM-8020

IM-SG2
Tempered stage glass
for IM-8020

OP-88239[*3]
Stage glass
for IM-8030

IM-G33
Stage glass (pack of three)
for IM-8030

IM-SG3
Tempered stage glass
for IM-8030

OP-88185
Fixture sheet

OP-88214[*4]
Stylus for
IM-8030T

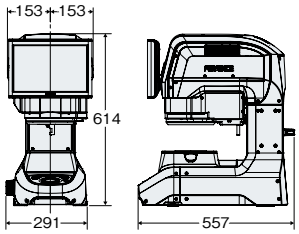
OP-88215
Flat stylus for
IM-8030T

OP-88552
IM adjustment
chart

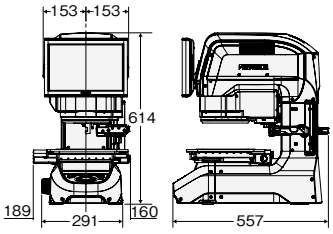
*1 One of these is included with the purchase of the IM-8005.
*2 One of these is included with the purchase of the IM-8020.
*3 One of these is included with the purchase of the IM-8030.
*4 One of these is included with the purchase of the IM-8030T.

Dimensions

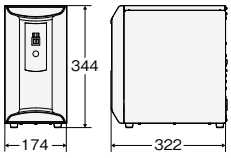
IM-8005 head



IM-8020 head



IM-8000 controller

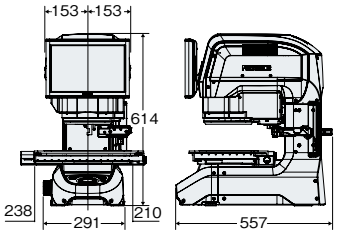


Specifications

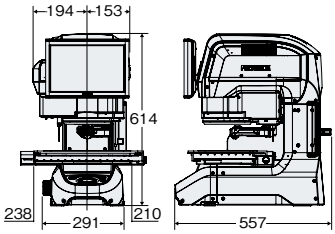
Model		Controller		IM-8000		
		Head		IM-8005	IM-8020	IM-8030
Image sensor				1" 20-megapixel monochrome CMOS		
Display				12.1" LCD monitor (WXGA: 1280 × 800)		
Receiver lens				Double telecentric lens		
Image measurement	Field of view	Wide-field measurement mode		ø100 mm	200 × 200 mm (4× R50)	300 × 200 mm (4× R50)
		High-precision measurement mode		25 × 25 mm	125 × 125 mm	225 × 125 mm
	Minimum display unit			0.1 µm		
	Repeatability	Wide-field measurement mode	Without stage movement	±1 µm		
			With stage movement	—	±2 µm	
		High-precision measurement mode	Without stage movement	±0.5 µm		
			With stage movement	—	±1.5 µm	
	Measurement accuracy (±2σ)	Wide-field measurement mode	Without binding	±3.9 µm*1		
			With binding	—	±(7 + 0.02 L) µm*2	±(7 + 0.02 L) µm*3
		High-precision measurement mode	Without binding	±2 µm*4		
			With binding	—	±(4 + 0.02 L) µm*5	±(4 + 0.02 L) µm*6
	Outer diameter measurement	Measurement accuracy	Wide-field measurement mode	±(2.8 + 0.02 D) µm*10	±(2.8 + 0.02 D) µm*11	±(2.8 + 0.02 D) µm*12
			High-precision measurement mode	±(1.4 + 0.04 D) µm*13	±(1.4 + 0.04 D) µm*14	±(1.4 + 0.04 D) µm*15
Light probe measurement	Measurable area (XY)			—	90 × 90 mm	190 × 90 mm
	Maximum measurement depth			—	30 mm	
	Light probe diameter			—	ø3 mm	
	Measuring force			—	0.015 N	
	Repeatability			—	±2 µm*7	
	Measurement accuracy			—	±(8 + 0.02 L) µm*8	±(8 + 0.02 L) µm*9
External remote input				Non-voltage input (with and without contact)		
External output		OK/NG/FAIL/MEAS.		PhotoMos output Rated load: 24 VDC 0.5 A ON resistance: 50 mΩ or lower		
Interface		LAN		RJ-45 (10BASE-T/100BASE-TX/1000BASE-T)		
		USB 3.1		4 ports (rear: 4)		
		USB 2.0 series A		4 ports (front: 2, rear: 2)		
		Monitor output		DVI-D		
Record		Hard disk drive		500 GB		
Environmental resistance		Operating ambient temperature		+10 to 35°C		
		Operating ambient humidity		20 to 80% RH (no condensation)		
		Pollution degree		2		
		Overvoltage category		II		
Illumination system		Transparent		Telecentric transparent illumination		
		Ring		Four division ring illumination	—	
		Ring		—	Four division, multi-angle illumination (electric)	
		Ring		—	Slit ring (directivity) illumination (electric)	
XY stage		Moving range		—	100 × 100 mm (electric)	200 × 100 mm (electric)
		Withstand load		5 kg		7.5 kg
Z stage		Moving range		75 mm (electric)		
Power supply		Power voltage		100 to 240 VAC ±10%, 50/60 Hz		
		Power consumption		430 VA or lower		
Weight		Controller		Approx. 8 kg		
		Head		Approx. 30 kg	Approx. 30 kg	Approx. 33 kg

*1 In the range of ø80 mm, within the operating ambient temperature range of +23 ±1°C at the focal point position. *2 In the range of 180 × 180 mm (4× R40), within the operating ambient temperature range of +23 ±1°C at the focal point position, and with a load weighing 2 kg or less on the stage. L is the amount of stage movement (in mm). *3 In the range of 280 × 180 mm (4× R40), within the operating ambient temperature range of +23 ±1°C at the focal point position, and with a load weighing 3 kg or less on the stage. L is the amount of stage movement (in mm). *4 In the range of ø20 mm, within the operating ambient temperature range of +23 ±1°C at the focal point position. *5 In the range of 120 × 120 mm, within the operating ambient temperature range of +23 ±1°C at the focal point position, and with a load weighing 2 kg or less on the stage. L is the amount of stage movement (in mm). *6 In the range of 220 × 120 mm, within the operating ambient temperature range of +23 ±1°C at the focal point position, and with a load weighing 3 kg or less on the stage. L is the amount of stage movement (in mm). *7 When the detection system is standard. If the detection system is at a deep position, ±3 µm. *8 When the detection system is standard, within the operating ambient temperature range of +23 ±1°C, and with a load weighing 2 kg or less on the stage. If the detection system is at a deep position, ±(10 + 0.02 L) µm with L as the measurement length (in mm). *9 When the detection system is standard, within the operating ambient temperature range of +23 ±1°C, and with a load weighing 3 kg or less on the stage. If the detection system is at a deep position, ±(10 + 0.02 L) µm with L as the measurement length (in mm). *10 Within the range of L18 mm × ø60 mm. At the focal point position, with the part positioned in the centre of the lens field of view, and with the shaft direction of the part facing the horizontal direction of the lens field of view. Within the operating ambient temperature range of +23 ±1°C. D is the Y direction distance (in mm). *11 Within the range of L118 mm × ø60 mm. At the focal point position, with the part positioned in the centre of the lens field of view, and with the shaft direction of the part facing the horizontal direction of the lens field of view. Within the operating ambient temperature range of +23 ±1°C. D is the Y direction distance (in mm). *12 Within the range of L218 mm × ø60 mm. At the focal point position, with the part positioned in the centre of the lens field of view, and with the shaft direction of the part facing the horizontal direction of the lens field of view. Within the operating ambient temperature range of +23 ±1°C. D is the Y direction distance (in mm). *13 Within the range of L6 mm × ø20 mm. At the focal point position, with the part positioned in the centre of the lens field of view, and with the shaft direction of the part facing the horizontal direction of the lens field of view. Within the operating ambient temperature range of +23 ±1°C. D is the Y direction distance (in mm). *14 Within the range of L106 mm × ø20 mm. At the focal point position, with the part positioned in the centre of the lens field of view, and with the shaft direction of the part facing the horizontal direction of the lens field of view. Within the operating ambient temperature range of +23 ±1°C. D is the Y direction distance (in mm). *15 Within the range of L206 mm × ø20 mm. At the focal point position, with the part positioned in the centre of the lens field of view, and with the shaft direction of the part facing the horizontal direction of the lens field of view. Within the operating ambient temperature range of +23 ±1°C. D is the Y direction distance (in mm).

IM-8030 head



IM-8030T head



Unit: mm

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