

12

Measuring Equipment



Coordinate Measuring Machines



Vision Measuring Systems



Optical Measuring Instruments



Form Measuring Systems



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Coordinate Measuring Machines

These coordinate measuring machines help determine spatial coordinates in 3 directions (X, Y and Z) on a workpiece surface to accurately capture the position and shape. Mitutoyo offers a wide range of models and probes to suit your application.

Standard CNC CMM

Suitable for automated measurements of small and medium-sized workpieces. The line-up includes various models that can be installed in temperature-controlled rooms and next to production lines.



Bridge Type Standard CNC CMM

CRYSTA-Apex V500/700/900

Versatile CNC coordinate measuring machines providing high-accuracy, high-speed, and high-acceleration measurements.

$E_{0,MPE}: 1.7 + 3L/1000 \mu\text{m}^*$
(L: Measuring length in mm)



Product catalog
E16026

5-axis CNC CMM

A 5-axis CNC CMM is also available for efficient measurement of workpieces that have complex shapes with free-form surfaces.



5-axis CNC CMM

CRYSTA-Apex EX 1200R

A versatile CNC coordinate measuring machine equipped with REVO-2, a 5-axis control-scanning probe head.

$E_{0,MPE}: 2.9 + 4L/1000 \mu\text{m}^*$
(L: Measuring length in mm)



Product catalog
E16015

High-accuracy CNC CMM

This brings together our advanced precision measurement technologies. The line-up includes models with high-speed and high-acceleration movements.



High-accuracy CNC CMM

STRATO-Apex 500/700/900

High-accuracy CNC coordinate measuring machines with a first term accuracy specification of $0.7 \mu\text{m}$.

$E_{0,MPE}: 0.7 + 2.5L/1000 \mu\text{m}^*$
(L: Measuring length in mm)



Product catalog
E16001



High-accuracy CNC CMM

STRATO-Active

Offers both high performance and cost-effective measurements.

$E_{0,MPE}: 1.2 + 3L/1000 \mu\text{m}^*$
(L: Measuring length in mm)



Product catalog
E16035

* Specifications vary by configuration, size and thermal environment.

Large-sized CNC CMM

The line-up includes models that can measure large workpieces such as car bodies and large structures.



Ultra-high Accuracy CNC CMM

LEGEX 500/700/900 Takumi Model*2

Ultra-high accuracy CNC coordinate measuring machines, boasting best-in-class accuracy (the first term accuracy specification of 0.23 μm), created by thoroughly eliminating error factors and providing excellent straightness and perpendicularity through sophisticated techniques by qualified artisans.

$$E_{0,MPE}: 0.23 + L/1000 \mu\text{m}^{*1}$$

(L: Measuring length in mm)



Product catalog E16012

*2 Takumi is a Japanese word meaning "artisan" with superb craftsmanship.



Bridge Type Standard CNC CMM

CRYSTA-Apex V1200/1600/2000 STRATO-Apex 1600/2000

Large CNC coordinate measuring machines developed to facilitate quality evaluation and assembly of large workpieces.

$$E_{0,MPE}: 2.3 + 3L/1000 \mu\text{m}^{*1}$$

$$E_{0,MPE}: 2.5 + 4L/1000 \mu\text{m}^{*1}$$

(L: Measuring length in mm)



Product catalog E16026



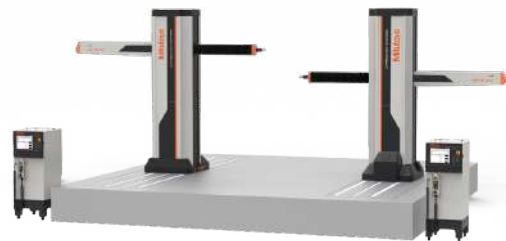
Product catalog E16001



Gantry Type High-accuracy CNC CMM

STRATO-Apex G

A CNC coordinate measuring machine with a moving bridge and installation base designed to provide high-accuracy measurement of large and heavy workpieces.



Horizontal Arm Type CNC CMM for Automobile Bodies

CARBstrato

The **CARBstrato** Series is a large CNC CMM and offers the world's largest class measurement range, making it possible to measure car bodies.

*1 Specifications vary by configuration, size and thermal environment.

Shop-floor/In-line Use Models

The machines can be installed in-line or next to a production line to detect nonconforming products early on. They can reduce risks in the manufacturing process and improve productivity.



Shop-floor Type CNC CMM

MiSTAR 555

Designed for use on any size shop floor.

$E_{0,MPE}: 2.2 + 3L/1000 \mu m^*$
(L: Measuring length in mm)



Product catalog
E16028



Video



In-line CNC CMM

MACH-V 9106

The CNC coordinate measuring machine for in-line use provides high acceleration and high-speed movement to enable high-throughput measurements.

$E_{0,MPE}: 2.5 + 3.5L/1000 \mu m^*$
(L: Measuring length in mm)



Product catalog
E16010



In-line, Horizontal CNC CMM

MACH-3A 653

A horizontal CNC coordinate measuring machine for in-line use that can not only save space but also increase throughput with high acceleration, high-speed movement, and high-speed measurement. An optional index table allows more flexible measurements.

$E_{0,MPE}: 2.2 + 3.5L/1000 \mu m^*$
(L: Measuring length in mm)



Product catalog
E16010



Compact In-line CNC CMM

MACH Ko-ga-me

A standalone CNC CMM measuring head can also be integrated with a single- or multi-axis machine to create a system to measure larger workpieces.

$E_{0,MPE}: 2.4 + 5.7L/1000 \mu m^*$
(L: Measuring length in mm)

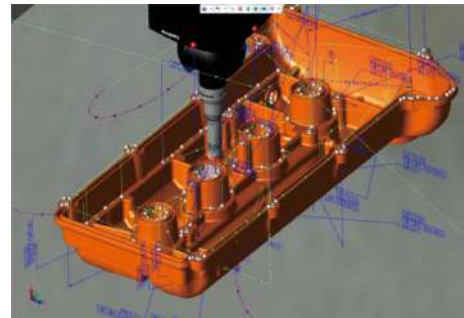
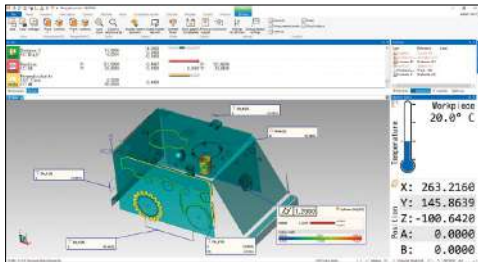


Product catalog
E16010

* Specifications vary by configuration, size and thermal environment.

Software

The line-up includes different types of dedicated software for evaluation and processing of data measured by coordinate measuring machines.



Data Processing Software

MCOSMOS

The software package includes data processing programs for coordinate measuring machines. Features a wealth of functions for connecting to 3D CAD models.



Product catalog
E16008

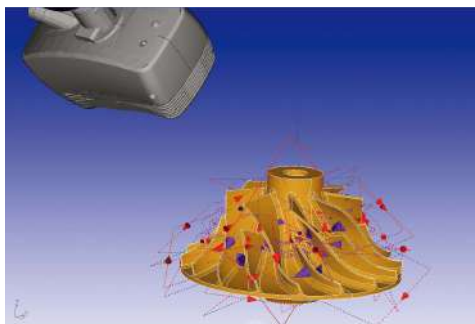
Automatic Measurement Program Generation Software

MiCAT Planner

The software is designed to import 3D CAD models and automatically complete high-quality measurement programs with one click. Time needed to create a measurement program can be greatly reduced.



Product catalog
E16019



Point Cloud Data Measurement Software

MSURF

With **SurfaceMeasure**, a non-contact line laser probe, the software can capture workpiece surface points and execute data analysis and evaluation. Linked with **MCOSMOS**, it can execute fully automatic contact and non-contact measurements.



Product catalog
E16005

Gear Measurement Evaluation Software

GEARPAK Express

Evaluation of tooth profile deviations, measurements, and evaluations of face widths, cylindrical shafts, keyways, etc. can be performed in a single program.



Video

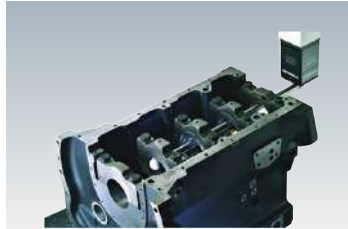
Probes

Various contact and non-contact probing systems are available to measure a wide range of workpieces.



Compact High-accuracy Scanning Probe
SP25M

A compact high-accuracy scanning probe that can be automatically adjusted in orientation.



High-accuracy Scanning Probe
SP80

A high-accuracy scanning probe usable with a long stylus.



High-accuracy and Low Measuring Force Scanning Probe
MPP-310Q

A high-accuracy scanning probe suitable for center alignment measurements and clamped workpiece scanning.



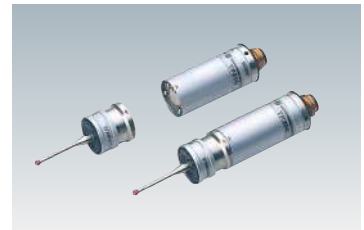
Non-contact Line-laser Probe
SurfaceMeasure

A non-contact line-laser probe that can collect a large volume of 3D profile data from a workpiece surface.



Vision Probe
QVP

Useful for vision measurements of a large and heavy workpiece that cannot be placed on a vision measuring system.



Compact High-accuracy Touch-trigger Probe
TP200

A high-accuracy touch-trigger probe is capable of changing styli automatically.



Roughness Probe
SURFTEST PROBE

A probe for surface roughness measurement.



5-axis Control Touch-trigger Probe Head
PH20

A 5-axis control touch-trigger probe head without limitations in the probe orientation angle.

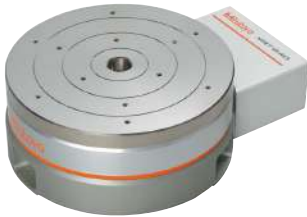


Motorized Probe Head
PH10MQ

This probe head allows automatic control of positioning (up to 720 directions) of the mounted probe. It is possible to mount **SP25M**, **SurfaceMeasure**, **QVP**, **TP200**, and **SURFTEST** probes to this probe head.

Options

Various options for easier and more efficient measurement with coordinate-measuring machines are available.



MRT240



MRT320



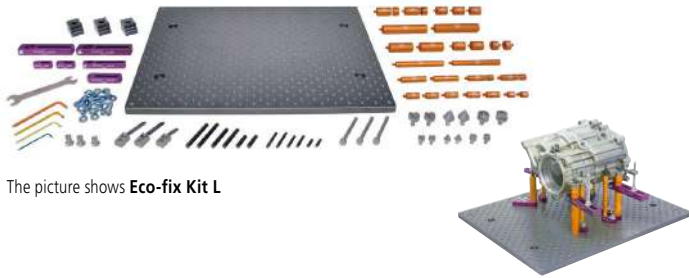
QS600/800

Rotary Table for CNC CMM

MRT240, MRT320, QS600/800

The rotary table helps ensure high-accuracy, highly efficient measurements of a rotating workpiece (a gear, impeller, cylindrical cam, etc.). Used in conjunction with a scanning probe to perform synchronous scanning, a wide variety of contour measurements can be taken, expanding the range of the supported applications.

Eco-fix Kit



The picture shows Eco-fix Kit L

Receiver plate set (optional)



Clamping System

Eco-fix Kit

Our tools can be joined as building blocks to create a clamping system in order to clamp a unique workpiece. Using such a clamping system to clamp your specific workpiece can remove the need to create a dedicated clamping system.

Vision Measuring Systems

Our vision measuring systems can provide a wide range of measurements in a single system. We have a comprehensive line-up to meet various needs.

Standard CNC Vision Measuring System

Vision measuring systems with high functionality and operability make it possible to perform non-contact measurement of various workpieces.



Vision Measuring System Equipped with Color Camera and Zoom

QV Active

A versatile CNC vision measuring system equipped with a color camera and a zoom unit with replaceable lens.

E_{1x}/E_{1y} : 2 + 3L/1000 μm
(L: Measuring length in mm)



Product catalog
E14022



Standard CNC Vision Measuring System

QV APEX Pro

A CNC vision measuring system with newly developed illumination and control technology for high-speed, high-accuracy measurement.

$E_{UX}/E_{UY, MPE}$: 1.5 + 3L/1000 μm
(L: Measuring length in mm)



Product catalog
E14028



Video

High-accuracy CNC Vision Measuring System

This is a high-accuracy version of the standard CNC model.



Ultra-high Accuracy CNC Vision Measuring System

QV ULTRA

An ultra-high accuracy CNC vision measuring system with a first term accuracy of $E_{UX}/E_{UY, MPE}$ is 0.35 μm that is enabled by adopting a highly rigid structure and eliminating error factors.

$E_{UX}/E_{UY, MPE}$: 0.35 + 1.3L/1000 μm
(L: Measuring length in mm)



Product catalog
E14002



High-accuracy CNC Vision Measuring System

QV HYPER Pro

The **QV HYPER Pro** is a highly accurate model that is equipped with a high-resolution/high-accuracy scale.

$E_{UX}/E_{UY, MPE}$: 0.8 + 2L/1000 μm
(L: Measuring length in mm)



Product catalog
E14028

CNC Vision Measuring System with Multiple Sensors



CNC Vision Measuring System Equipped with Non-contact Displacement Sensor

QVH4 Pro

A complex measuring system with a non-contact displacement sensor that is optimal for measuring steep surfaces or surfaces with different reflection rates.

$E_{UX}/E_{UY, MPE}$: 1.5 + 3L/1000 μm (for QVH4 Apex Pro model)

$E_{UX}/E_{UY, MPE}$: 0.8 + 2L/1000 μm (for QVH4 Hyper Pro model)
(L: Measuring length in mm)



Product catalog
E14028

Multi-sensor design allows versatile and flexible measurements.



CNC Vision Measuring System Equipped with Non-contact Displacement Sensor

QVH1 Pro

A complex measuring system for micro-form measurement that uses a non-contact displacement sensor with a minimum laser spot diameter.

$E_{UX}/E_{UY, MPE}$: 1.5 + 3L/1000 μm (for QVH1 Apex Pro model)

$E_{UX}/E_{UY, MPE}$: 0.8 + 2L/1000 μm (for QVH1 Hyper Pro model)
(L: Measuring length in mm)



Product catalog
E14028



CNC Vision Measuring System Equipped with a Touch-trigger Probe

QVTP Pro

A complex measuring system with a touch-trigger probe suitable for contact measurements of the sides and height of a workpiece.

$E_{UX}/E_{UY, MPE}$: 1.5 + 3L/1000 μm (for QVTP Pro model)

$E_{UX}/E_{UY, MPE}$: 0.8 + 2L/1000 μm (for QVTP Hyper Pro model)
(L: Measuring length in mm)



Product catalog
E14028



CNC Vision Measuring System Equipped with a Touch-trigger Probe

QVTP Active

A complex measuring system with a touch-trigger probe suitable for contact measurements of the sides and height of a workpiece.

E_{1x}/E_{1y} : 2 + 3L/1000 μm

(L: Measuring length in mm)



Product catalog
E14022

High-accuracy 3D Measuring System

QVWLI can measure coordinates and dimensions and assess micro-3D forms without contact in a single machine. 3D data captured by the **WLI** optical system enables 3D surface texture analysis and 3D roughness analysis.



Non-contact 3D Measuring System

QVWLI Pro

A high-accuracy 3D measuring system with a WLI optical system that can measure micro-forms to the sub-micrometer level.

$$E_{UX}/E_{UY, MPE}: 0.8 + 2L/1000 \mu\text{m}$$

(L: Measuring length in mm)



Product catalog
E14001

Large-sized CNC Vision Measuring System

The moving bridge design makes it suitable for measuring large objects as well as small, thin objects. The fixed stage design allows for a more simplified design of the workpiece fixture.



Large-sized Vision Measuring System

QV ACCEL

A vision measuring system with a moving-bridge structure suitable for measurements of a large workpiece.

$$E_{1X}/E_{1Y}: 1.5 + 3L/1000 \mu\text{m}$$

(L: Measuring length in mm)



Product catalog
E14028

Micro-form Measuring System



CNC Vision Measuring Machine with Micro-form Scanning Probe

MiSCAN Vision System

A complex measuring system designed for scanning measurements with a stylus ball diameter as small as 125 μm .

$$E_{1X}/E_{1Y, MPE}: 1.5 + 3L/1000 \mu\text{m}$$

$$E_{1X}/E_{1Y, MPE}: 0.8 + 2L/1000 \mu\text{m} \text{ (for MVS Hyper model)}$$

$$E_{0, MPE}: 1.9 + 4L/1000 \mu\text{m} \text{ (when using MPP-NANO probe system)}$$

$$E_{0, MPE}: 1.9 + 4L/1000 \mu\text{m}^* \text{ (when using SP25M probe system)}$$

(L: Measuring length in mm)



Product catalog
E14024



Video

The versatile, high-accuracy micro-form measuring system can measure a wide range of workpieces, from micro-forms to larger pieces.



Micro-form Measuring System

UMAP Vision System TYPE2

Designed for micro-dimension and form measurements with a stylus ball diameter as small as 15 μm .

$$E_{UX}/E_{UY, MPE}: 0.8 + 2L/1000 \mu\text{m} \text{ (for UVS Hyper model)}$$

$$E_{UX}/E_{UY, MPE}: 0.35 + 1.3L/1000 \mu\text{m} \text{ (for UVS ULTRA model)}$$

$$E_{1X}/E_{1Y, MPE}: 1.5 + 3L/1000 \mu\text{m}^* \text{ (when using UMAP probe system)}$$

(L: Measuring length in mm)

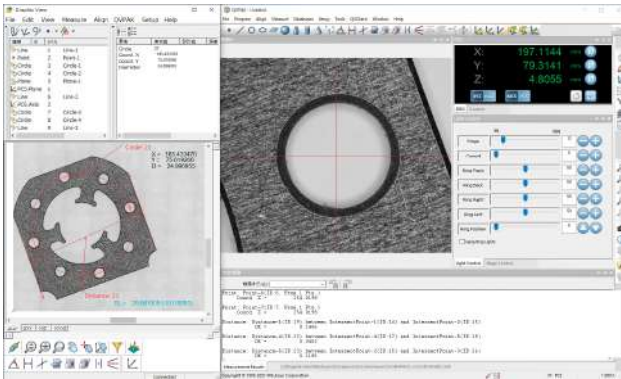


Product catalog
E14000

* Specifications vary by configuration, size and thermal environment.

Software

A wide variety of software applications with high functionality and operability are available to support all kinds of measurements, including simple and complex measurements.



Data Processing Software for QV

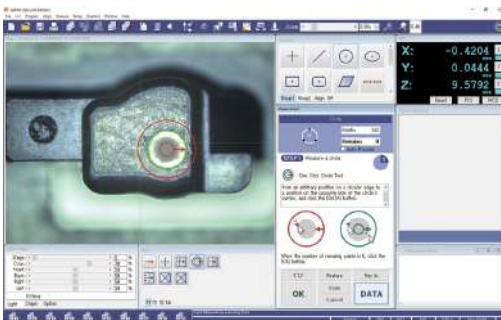
QVPAK

Software for high-performance vision measurement and for form analysis using different displacement sensors.

Note: Software for **MISCAN Vision System** is **MCOSMOS** (Refer to page 12-6).



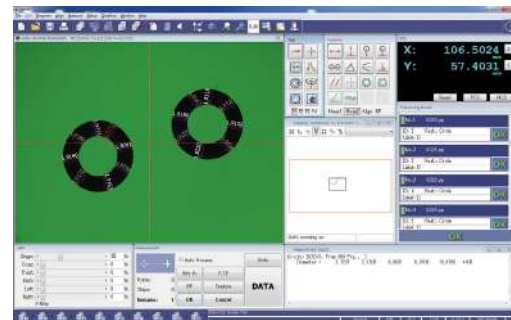
Product catalog
E14028



Software for QS-L/AF

QSPAK

Easy-to-use software provides stable measurements, even for inexperienced operators.



Software for QI

QIPAK

With a long focal depth, a wide field of view can be measured with one click without the need of focusing on a stepped workpiece.

Manual 3D Vision Measuring System

With a fast auto focus function built in as standard, the manual stage vision measuring system can perform height measurements as well in a single system. This ensures reliable measurement of details.



Manual Stage Vision Measuring System

QS-L/AFC

A vision measuring system with a color camera with high-precision, high-speed auto focus.

Measuring accuracy (X Y): $(2.2 + 0.02L) \mu\text{m}$
(L: Measuring length in mm)



Product catalog
E14004

Manual 2D Vision Measuring System

The 2D color vision measuring system can stably and accurately measure workpieces of various shapes and sizes. Displaying a whole workpiece can significantly increase measurement efficiency.



2D Color Vision Measuring System

QI

A 2D vision measuring system that has an optical system with deep depth of focus and a screen providing a wide field of view, enabling highly efficient measurements.

$E_{1XY}: \pm (3.5 + 0.02L) \mu\text{m}$
(L: Measuring length in mm)



Product catalog
E14009

Optical Measuring Instruments

A wide variety of optical measuring instruments with in-house-developed lenses, the “eyes” of optical measuring instruments, are available to respond to various measuring applications.

Profile Projector

The projectors display a workpiece image magnified at an accurate ratio on a screen to improve efficiency of measurement, inspection, and observation. They can be installed in various locations such as inspection laboratories and manufacturing and processing sites.



High-accuracy Profile Projector

PJ-H30

A high-end model in the PJ Series that can provide a clear and sharp projected image.

Screen effective diameter: $\phi 306$ mm
Projected image: Erect



Product catalog
E14005



Profile Projector

PJ-PLUS

A profile projector with highly durable, energy-efficient LED illumination and a built-in counter.

Screen effective diameter: $\phi 315$ mm
Projected image: Inverted-reversed
Illumination: White LED



Product catalog
E14005



Profile Projector

PV-5110

Equipped with a large 500 mm screen.
Projected images can be easily traced or compared with a template.

Screen effective diameter: $\phi 508$ mm
Projected image: Inverted-reversed



Product catalog
E14005



Profile Projector

PH-3515F

A profile projector suitable for measurement and observation of an end mill, cutter, circular saw, etc. of cutting tools.

Screen effective diameter: $\phi 353$ mm
Projected image: Erect-reversed



Product catalog
E14005

Measuring Microscope

Best-in-class accuracy is guaranteed for all models of the series. The intuitive positioning function ensures accuracy and ease of use.



Measuring Microscope with Z-axis Motor Drive

MF-J/MF-UJ/MF-UK

High-accuracy measuring microscopes with a motor drive that can bring the microscope into focus in the “blink of an eye” (approximately 1 second).

Measuring accuracy (X Y): $(2.2 + 0.02L) \mu\text{m}$
(L: Measuring length in mm)

Observation image: Bright-field/Dark-field/Polarization/Differential Interference Contrast

Z axis feed mechanism: Motor drive



Measuring Microscope

MF-U

Integration of metallurgical and measurement microscope functions provides high-resolution observation and a high-accuracy measurement solution.

Measuring accuracy (X Y): $(2.2 + 0.02L) \mu\text{m}$
(L: Measuring length in mm)

Observation image: Bright-field/Dark-field



Product catalog E14003



Measuring Microscope

MF

An easy-to-use, standard measuring microscope model with a dedicated long working distance ML objective lens.

Measuring accuracy (X Y): $(2.2 + 0.02L) \mu\text{m}$
(L: Measuring length in mm)

Observation image: Bright-field



Product catalog E14003



Video



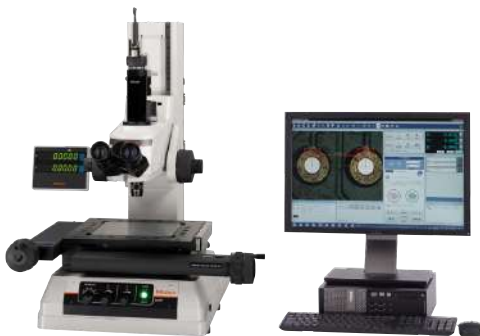
Toolmakers' Microscope

TM500

A toolmakers' microscope with an LED illumination useful for observation of a sharp and clear image.

Measuring range: 50x50 mm, 100x50 mm
Maximum load: 5 kg

Data Processing Unit



Vision Unit Retrofit for Microscopes

Vision Unit

Helps increase measurement efficiency and reduce human errors due to operator's skill by providing automatic edge detection and other image processing functions.



Product catalog E14008



2D Data Processing Unit

QM-Data200

A 2D data processing unit connected to a projector or measuring microscope and used for calculation.



Product catalog E14008

Microscope Unit

The microscope units have great track records of integration into systems and support a wide variety of observation methods. They are suitable for inspection and analysis of electronic semiconductors and metal parts.



Microscope Unit

FS70

A microscope unit with eyepieces, designed for integration with an instrument.

Supports variable magnification by employing a revolver and can be used for microfabrication with YAG lasers.

Observation image: Bright-field, Bright/Dark-field, Polarization, Differential Interference Contrast



Product catalog E14020



Video Microscope Unit/Wide-field Video Microscope Unit

VMU/WIDE VMU

Microscope unit for incorporating into optical systems.

Models in the line-up can support observation of an actual field of view of $\varnothing 30$ mm.

Suitable for various types of observation (bright-field, bright/dark-field, and near-infrared) and laser processing.

Observation image: Bright-field, Bright/Dark-field



Product catalog E14020



Video



Product catalog
E14020

Objectives

The line-up of objective lenses supports a wide range of wavelength bands, from ultraviolet light and visible light to near-infrared light. They can be used in observation, inspection, and laser processing.

Visible radiation range objectives (VIS)



Bright-field observation, long working distance, plan apochromat lens.

Visible radiation range objectives (VIS)



Bright-field observation/dark-field observation, long working distance, plan apochromat lens.

Near-infrared radiation range objectives (NIR)



Bright-field observation/near-infrared observation/laser processing, long working distance, plan apochromat lens.

Near-ultraviolet radiation range objectives (NUV)



Bright-field observation/near-ultraviolet observation/laser processing, long working distance, plan apochromat lens.

Ultraviolet radiation range objectives (UV)



Bright-field observation/ultraviolet observation/laser processing, long working distance, plan lens.

Varifocal Lens

The line-up of ultra-high-speed varifocal lenses can significantly expand the depth of focus. They help reduce the inspection time and greatly increase the observation efficiency.



Varifocal Lens

TAGLENS-T1

Captures a clear image with a deep depth of focus by adjusting the focal length at a high speed.

Resonance frequency: 70 kHz

Effective aperture: $\phi 11$ mm



Product catalog
E14025



Video



Relay Optical System Microscope Unit

VMU-T1

Microscope unit for configuring a varifocal optical system by incorporating **TAGLENS-T1**, the objective and the camera.



Pulse Illumination Unit for TAGLENS

PLS

Combined with **TAGLENS-T1**, the ultra-high-speed LED pulse illuminator enables capture of an image in focus at a desired point as well as focus stacking.

Form Measuring Systems

The line-up includes a wide range of measuring systems that can capture various form properties such as surface roughness, contour, and roundness.

Roundness/Cylindricity/Surface Roughness/ Contour Measuring System



Roundness/Cylindricity Measuring System

ROUNDTRACER EXTREME

The CNC form measuring system can measure surface roughness, contour, and roundness/cylindricity in a single system.

Rotational accuracy (Radial direction): $(0.02 + 3.5H/10000) \mu\text{m}$
(H: Probing height in mm)
Maximum load: 60 kg



Product catalog
E15032



Video



Roundness/Cylindricity Measurement/Analysis Software

ROUNDPAK

A wide variety of parameters including those for roundness/cylindricity, as well as flatness and parallelism, are provided as standard features. Special analyses, such as design value best-fit analysis, harmonic analysis, and peak and bottom detection on a circle, are supported.

A high-end system which can combine roundness, contour and surface roughness measurements into one device. It can reduce the measurement time and improve productivity by streamlining processes.

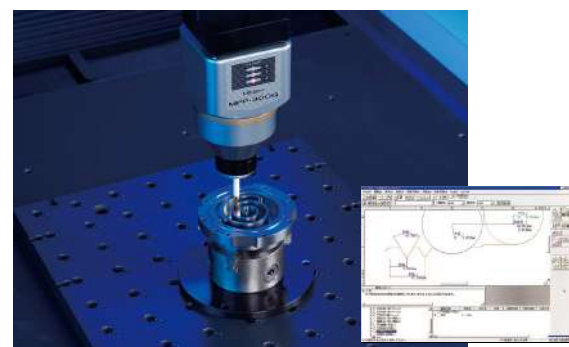


High-speed High-accuracy Roundness/Cylindricity Measuring System

ROUNDTRACER FLASH

A non-contact form measuring system that can evaluate dimensions and form profiles in a few seconds with a 2D image sensor.

Probing height: 100 mm, 300 mm
Probing diameter: 60 mm
Maximum load: 6 kg



Two-dimensional Primary Profile Analyzing Software

FORMTRACEPAK-AP

Optional software for 2D contour analysis and roughness analysis of measurement points obtained by the main programs of vision 3D/roundness measuring systems.

Surface Roughness and Contour Measuring System (Surface Texture Measuring Instrument)



Surface Roughness and Contour Measuring System

FORMTRACER Avant D3000/4000

Complex measuring systems that can support both surface roughness and contour measurement in a single system by switching the detector without turning off the machine.

Measuring range (X axis): 100 mm, 200 mm
 Roughness measuring range (Z1 axis): 800 μm/80 μm/8 μm
 Contour measuring range (Z1 axis): Contour 60 mm



Product catalog E15030

The hybrid model supports surface roughness measurement and contour measurement on a single system, reducing the time required for changeover and measurement.



CNC Surface Roughness and Contour Measuring System

FORMTRACER Extreme SV-C4500CNC FORMTRACER Extreme SV-C4500CNC HYBRID TYPE1

Complex CNC measuring systems that can support both surface roughness and contour measurement in a single system by switching the detector without turning off the machine.

Measuring range (X axis): 200 mm
 Roughness measuring range (Z1 axis): 800 μm/80 μm/8 μm
 Contour measuring range (Z1 axis): Contour 60 mm



Product catalog E15021



CNC Surface Texture Measuring System

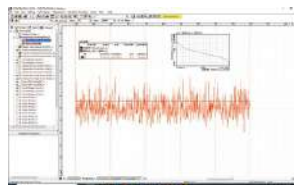
FORMTRACER Extreme CS-5000CNC/CS-H5000CNC

High-accuracy CNC surface measuring instrument that can support both surface roughness and contour evaluation in a single measurement.

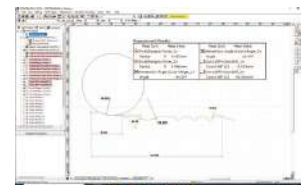
Measuring range (X axis): 200 mm
 Measuring range (Z1 axis): 12 mm/24 mm



Product catalog E15021



Surface roughness analysis



Contour analysis

Surface Texture Analysis Program

FORMTRACEPAK

Helps with overall operation from measuring system control, surface roughness analysis, and contour analysis/tolerancing, to inspection report creation.

Contour Measuring Instrument

The line-up includes measuring systems designed for contour measurement that can perform easy, accurate and quick form measurement.



High-performance Contour Measuring Instrument

FORMTRACER Avant C3000/4000

Digital contour measuring instruments with a high-speed drive and various time-saving functions for efficient measurement.

Measuring range (X axis): 100 mm, 200 mm
Measuring range (Z1 axis): 60 mm



Product catalog E15030



Contour Measuring Instrument

CONTRACER CV-2100

Contour measuring instruments for easy, accurate, fast measurements by concentrating measurement control switches at the front of the unit.

Measuring range (X axis): 100 mm
Measuring range (Z1 axis): 50 mm



Product catalog E15020

Surface Roughness Instrument

These measuring systems are designed for surface roughness measurement. The line-up includes various models such as portable and stationary types to support different applications.



High-performance Contour Measuring Instrument

FORMTRACER Avant S3000

Surface roughness instruments with a high-speed drive and an automatic changeover unit for efficient measurement.

Measuring range (X axis): 100 mm, 200 mm
Measuring range (Z1 axis): 800 μm/80 μm/8 μm



Product catalog E15030



CNC Surface Roughness Instrument

SURFTEST Extreme SV-3000CNC

A CNC surface roughness instrument suitable for automatic measurements of a large, heavy, complex-shaped workpiece.

Measuring range (X axis): 200 mm
Measuring range (Z1 axis): 800 μm/80 μm/8 μm



Product catalog E15021

Surface Roughness Instrument

These measuring systems are designed for surface roughness measurement. The line-up includes various models such as portable and stationary types to support different applications.



Surface Roughness Instrument

SURFTEST SJ500/SV-2100 **SURFTEST SJ-500P/SV-2100M4**

High-accuracy, high-performance surface roughness instruments with a dedicated control unit that provides an easy-to-see display and simple operation.

Measuring range (X axis): 50 mm, 100 mm
Measuring range (Z1 axis): 800 µm/80 µm/8 µm

Compact Surface Roughness Instrument

SURFTEST SJ-410

Compact surface roughness instruments with a large high-visibility color LCD that helps with micro-form evaluation.

Measuring range (X axis): 25 mm, 50 mm
Measuring range (Z1 axis): 800 µm/80 µm/8 µm



Product catalog
E15006



Product catalog
E15014



Compact Surface Roughness Instrument

SURFTEST SJ-210/310

Compact, portable, and easy-to-use surface roughness instruments for on-site surface measurements.

Measuring range (X axis): 5.6 mm, 16 mm
Measuring range (Z1 axis): 360 µm



Product catalog
E15028

Roundness Measuring Instrument

These measuring systems are designed for roundness and cylindricity measurement. The line-up includes various models from small to large sizes to measure different workpieces.



High-performance Roundness/Cylindricity Measuring System

ROUNDTEST RA-2200 ROUNDTEST RA-2200 PLUS

D type: Enhanced procedure of centering and leveling adjustment
A type: Automated centering and leveling adjustment
Medium-sized roundness measuring systems that can reduce workload of operator.

Rotational accuracy (Radial direction): $(0.02 + 3.5H/10000) \mu\text{m}$
(H: Probing height in mm)
Maximum load: 30 kg



Product catalog
E15001



Roundness/Cylindricity Measuring System

ROUNDTEST RA-1600

The body is compact but still achieves a wide measuring range.
Provides high accuracy comparable to high-end models.

Rotational accuracy (Radial direction): $(0.02 + 6H/10000) \mu\text{m}$
(H: Probing height in mm)
Maximum load: 25 kg



Product catalog
E15000



High-accuracy Roundness/Cylindricity Measuring System

ROUNDTEST RA-H5200 ROUNDTEST RA-H5200 PLUS

Large roundness measuring systems designed to perform automatic centering and leveling adjustments and high-speed, high-accuracy measurements.

Rotational accuracy (Radial direction): $(0.02 + 3.5H/10000) \mu\text{m}$
(H: Probing height in mm)
Maximum load: 80 kg



Product catalog
E15011



Compact Roundness Measuring Instrument

ROUNDTEST RA-120/120P ROUNDTEST RA-10

Easy-to-operate compact roundness measuring instruments.

Rotational accuracy (Radial direction): $(0.04 + 6H/10000) \mu\text{m}$
(H: Probing height in mm)
Maximum load: 10 kg, 25 kg



Product catalog
E15008

Hardness Testing Machines

A wide variety of hardness testing machines are available for quality control. The line-up includes affordable to high-end models that can be selected to meet your application.

Micro Vickers/ Vickers Hardness Testing Machine



Micro Vickers Hardness Testing Machine

HM-100

Basic micro Vickers hardness testing machine models for reading indentations visually.

Applicable standards: JIS B7725/ISO 6507-2
Test force: 98.07 - 9,807 mN (10 - 1,000 gf)



Product catalog
E17001

These hardness testing machines can be used to test a wide range of workpieces including metal materials and heat-treated parts. An advanced model supporting automated continuous testing is also available to improve productivity.



Micro Vickers Hardness Testing Machine

HM-210A/220A

Instruments with integrated calculations and an electromagnetic loading mechanism for setting a desired test force.

Applicable standards: JIS B7725/ISO 6507-2
Test force: 98.07 - 9,807 mN (10 - 1,000 gf), 0.4903 - 19,610 mN (0.05 - 2,000 gf)



Product catalog
E17001



Micro Vickers Hardness Testing Machine (Automatic Type)

HM-210/220

Reduces person-to-person variation and increases test efficiency by automating measurements of indentations and stage movement.

Applicable standards: JIS B7725/ISO 6507-2
Test force: 98.07 - 9,807 mN (10 - 1,000 gf), 0.4903 - 19,610 mN (0.05 - 2,000 gf)



Vickers Hardness Testing Machine

HV-110A/120A

Easy-to-operate Vickers hardness-testing machines that allow for test force switching on a touch panel.

Applicable standards: JIS B7725/ISO 6507-2
Test force: 9.807 - 490.3 N (1 - 50 kgf), 2.942 - 294.2 N (0.3 - 30 kgf)



Product catalog
E17001



Vickers Hardness Testing Machine (Automatic Type)

HV-110/120

Reduces person-to-person variation and increases test efficiency by automating measurements of indentations and stage movement.

Applicable standards: JIS B7725/ISO 6507-2
Test force: 9.807 - 490.3 N (1 - 50 kgf), 2.942 - 294.2 N (0.3 - 30 kgf)



Rebound Type Portable Hardness Tester

HH-411

Compact portable hardness testers with high operability allowing for hardness testing with one touch.

Leeb hardness: 1 to 999 HL



Product catalog
E17001



Portable Hardness Tester

HH-300

Hardness testers for testing sponge, rubber, and plastic materials by simply pressing the probe against the workpiece.

Display: Analog/Digital



Product catalog
E17001

Rockwell Hardness Testing Machine

The line-up includes various models, ranging from a large high-end model that can withstand large and heavy workpieces to a small model that is very affordable.



CNC Rockwell Hardness Testing Machine

HR-610A/620A

Allows a large and heavy workpiece to be tested without being cut into pieces.
A motorized X-axis stage (optional) has been installed to support automation.

Test force: 29.42 - 1,839 N (3 - 187.5 kgf), 9.807 - 2,452 N (1 - 250 kgf)
Maximum load: 100 kg



Product catalog E17011



Video



CNC Rockwell Hardness Testing Machine

HR-620B

A motorized Y-axis stage is included as standard.
A fully-automated Rockwell hardness-testing machine can be built, including the workpiece transfer process.

Test force: 9.807 - 2,452 N (1 - 250 kgf)
Maximum load: 100 kg



Rockwell Hardness Testing Machine

HR-200/300/400

The line-up offers digital display type and analog display type Rockwell hardness-testing machines.

Applicable standards: JIS B7726/ISO 6508-2, ASTM E18-20 (Excludes HR-200)
Test force: 588.4 - 1,471 N (60 - 150 kgf)



Product catalog E17000



Rockwell Hardness Testing Machine

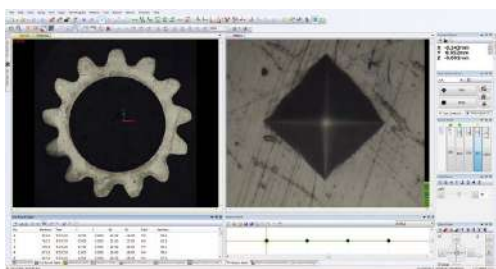
HR-530/530L

Rockwell hardness-testing machines with a unique structure that allows for testing the hardness of the inner surface of a workpiece without cutting it into pieces.

Applicable standards: JIS B7726/ISO 6508-2, ASTM E18-20
Test force: 588.4 - 1,471 N (60 - 150 kgf)
Maximum load: 20 kg



Product catalog E17001



Software for Hardness Testing

AVPAK

Software for workpiece image capturing, automatic measurement of indentations, automatic continuous testing with a specific pattern, testing machine control for efficient testing of multiple workpieces, result evaluation, and report creation.



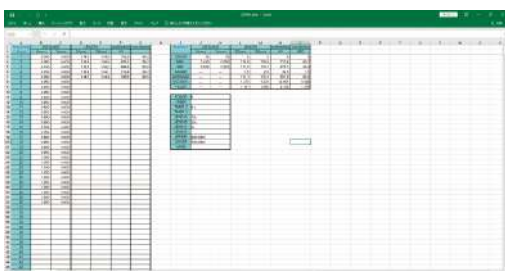
Product catalog
E17001



Software for External Control

FORMEio

An automation system can be built by connecting the software to hardness-testing machines. (HV-110, HV-120, HM-210, HM-220 and HR-600 Series)



Data Processing Software for Hardness Testing

EXPAK

Measurement results from a hardness-testing machine can be imported to spreadsheet software.