The following introduce Mitutoyo’s precision measurement instruments suitable for various applications.

**Precision Measurement Instruments That Support Development and Production of New Lenses**

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**Note:** Product descriptions are without obligation. Product descriptions in particular may be subject to technical modifications at any time without prior notification and even during regular operations.

Mitutoyo is not only a manufacturer of top quality measurement instruments but also a service partner. Mitutoyo offers a comprehensive range of services aimed at the entire life cycle of the equipment. This includes all phases of measurement technology, from the comprehensive consultation on the selection of the most suitable measuring equipment to the design, build, test and deliver bespoke measuring systems, and IT support for the sophisticated software embedded in the systems. As a further boost to the support and ease of operation, Mitutoyo offers on-site repair services and maintenance. These comprehensive services cover everything from the measurement techniques to the design specifications and up to the sub-contract basis.

Whatever your challenges are, Mitutoyo supports you from start to finish.

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High-accuracy Digital Length Measuring Machine: VL-50

Allows desktop measurement of a lens' thickness. This machine enables measurement of an easily-deformed, thin-walled lens with a low measuring force of 0.01 N (minimum).

Non-contact 3D Measuring System: HQV-WLI

Allows non-contact 3D surface roughness evaluation of a lens surface. This system can also evaluate in 2D. Additionally, being provided with the functions of a vision measuring machine, geometrical tolerance evaluations such as diameter and flatness can be made. (Dual-role system)

Surface Roughness and Contour Measuring System: CS-H5000CNC

Allows non-contact 3D evaluation of an aspheric lens' contour. This instrument can also evaluate in 3D. Additionally, since lens alignment is performed mechanically instead of correction by software, this allows correct alignment measurement on the lens' optical axis. The installed dimensional analysis function can also measure the values of distance, angle and step.

CNC Roundness/Cylindricity Measuring System: RA-H5200

The coaxiality of a mold core will affect the deviation from the optical axis on both sides of a lens. Therefore, a mold cavity needs high machining accuracy. This system can evaluate circularity, cylindricity and coaxiality with a rotational accuracy of 20 nm.

Ultra-high Accuracy CNC CMM: LEGEX

The accuracy of a mold cavity will affect the deviation from the optical axis on both sides of a lens. Therefore, a mold cavity needs high machining accuracy. This CMM can evaluate coordinates, positional deviation, diameter, circularity, etc., with an accuracy of 0.28 μm.

Ultra-high Accuracy Vision Measuring System: ULTRA QV

The electrode used in the electrical discharge machining process of a lens molding die needs high machining accuracy with respect to its position and form. This measuring system can evaluate the coordinates and form of a lens electrode with an accuracy of 0.25 μm.

Minute Form Measuring System: UMAP

This measuring system is a contact type using a high aspect ratio minute probe stylus (e.g., ø70 μm, 5 mm) that enables high-accuracy evaluation of the diameter, circularity and coaxiality of a lens barrel. An ultra-low measuring force (1 μN minimum) eliminates concern about possible workpiece deformation and allows measurement without use of fixtures.

Ultra-high Accuracy CNC CMM: LEGEX

The accuracy of a mold cavity will affect the deviation from the optical axis on both sides of a lens. Therefore, a mold cavity needs high machining accuracy. This CMM can evaluate coordinates, positional deviation, diameter, circularity, etc., with an accuracy of 0.28 μm.

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Aspheric Lens

Lens Mold (Cavity)

Lens Barrel

Ultra-high accuracy digital length measuring machine: VL-50

High-accuracy Digital Length Measuring Machine: VL-50

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Mitutoyo offers solutions to measurement of a wide variety of lenses from research and development to preproduction and mass production.