SMZ Series

The highly cost-effective SMZ series offer outstanding optical performance, flexible system expandibility, and superb operability.

### Parallel Optics Type

<table>
<thead>
<tr>
<th>Model</th>
<th>Zoom Ratio</th>
<th>Zoom Range</th>
<th>Total Magnification</th>
<th>WD</th>
<th>Camera</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMZ25</td>
<td>25 : 1</td>
<td>0.63–15.75×</td>
<td>3.15–445×</td>
<td>60 mm</td>
<td>✔</td>
</tr>
<tr>
<td>SMZ18</td>
<td>18 : 1</td>
<td>0.75–13.5×</td>
<td>3.76–810×</td>
<td>70 mm</td>
<td>✔</td>
</tr>
<tr>
<td>SMZ1270</td>
<td>12.7 : 1</td>
<td>0.63–8×</td>
<td>3.15–480×</td>
<td>78 mm</td>
<td>✔</td>
</tr>
<tr>
<td>SMZ800N</td>
<td>8 : 1</td>
<td>1–8×</td>
<td>5–480×</td>
<td>78 mm</td>
<td>✔</td>
</tr>
</tbody>
</table>

### Greenough Type

<table>
<thead>
<tr>
<th>Model</th>
<th>Zoom Ratio</th>
<th>Zoom Range</th>
<th>Total Magnification</th>
<th>WD</th>
<th>Camera</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMZ745</td>
<td>7.5 : 1</td>
<td>0.67–5×</td>
<td>3.35–300×</td>
<td>115 mm</td>
<td>✔ (SMZ745 only)</td>
</tr>
<tr>
<td>SMZ745T</td>
<td>4.4 : 1</td>
<td>0.8–3.5×</td>
<td>4–70×</td>
<td>100 mm</td>
<td>✔</td>
</tr>
<tr>
<td>SMZ445</td>
<td>4.3 : 1</td>
<td>0.7–3×</td>
<td>3.5–60×</td>
<td>—</td>
<td>✔</td>
</tr>
<tr>
<td>SMZ460</td>
<td>5 : 1</td>
<td>0.8–4×</td>
<td>4–120×</td>
<td>—</td>
<td>✔</td>
</tr>
<tr>
<td>SMZ-2</td>
<td>5 : 1</td>
<td>0.8–4×</td>
<td>4–120×</td>
<td>77.5 mm</td>
<td>✔</td>
</tr>
</tbody>
</table>

*1: Depending on combination of Eyepiece and Objective lens. *2: Combination of Eyepiece 10× and Objective lens 10×. *3: Objective lens 1× or no Auxiliary lens.

Please refer to individual product brochures for further details.
Industrial Microscopes

Nikon’s Industrial Microscopes utilize the CFI Plan 2-NA objective systems, highly evaluated for its unique concept of high NA combined with long WD.

### Upright Microscopes (General model)

**LV150N**  
**LV150NA**  
**LV150NL**

Stand and illumination units are selectable according to observation methods and purpose of use.

**LV100ND**  
**LV100NDA**

Model offers various observation methods with reflected/transmitted illumination.

<table>
<thead>
<tr>
<th>Observation Method</th>
<th>BF</th>
<th>DF</th>
<th>DIC</th>
<th>FL</th>
<th>POL</th>
<th>2-Beam</th>
<th>Ph-C</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPI</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>DF</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>DIC</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>FL</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>POL</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>2-Beam</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Ph-C</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

Available / △: Simple polarizing observation

**LV100ND**  
**LV100NDA**

Model offers various observation methods with reflected/transmitted illumination.

<table>
<thead>
<tr>
<th>Observation Method</th>
<th>BF</th>
<th>DF</th>
<th>DIC</th>
<th>FL</th>
<th>POL</th>
<th>2-Beam</th>
<th>Ph-C</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPI</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>DF</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>DIC</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>FL</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>POL</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>2-Beam</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Ph-C</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

Available / △: Simple polarizing observation

### Upright Microscopes (Large-sized stage model)

**L300N**  
**L300ND**

Stage with stroke 350×300mm is available. Suitable for ø300mm wafer observation.

<table>
<thead>
<tr>
<th>Observation Method</th>
<th>BF</th>
<th>DF</th>
<th>DIC</th>
<th>S-POL</th>
<th>FL</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPI</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>DIA</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

L300ND only

**L200N**  
**L200ND**

Stage with stroke 200×200mm is available. Suitable for ø200mm wafer observation.

<table>
<thead>
<tr>
<th>Observation Method</th>
<th>BF</th>
<th>DF</th>
<th>DIC</th>
<th>S-POL</th>
<th>FL</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPI</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>DIA</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

L200ND only

### Inverted Metallurgical Microscopes

**MA200**

With its unique, solid-box structure, the MA200 offers high stability, durability, and a smaller footprint than conventional models.

**MA100N**

MA100N is compact, inverted microscopes designed for brightfield and simple polarizing observations.

### Polarizing Microscopes

**LV100NPOL**

Outstanding optical performance, perfect for a wide variety of imaging applications and polarizing techniques.

**Ci POL**

Compact polarizing microscope that balances optical performance and ease of use.

Please refer to individual product brochures for further details.
Digital Cameras for Microscopes

The lineup allows you to select a suitable camera for each sample and observation method.

**Microscope Camera**

**DS-Fi3**
- Three main features of the previous models, high-resolution, high sensitivity and low noise, and high-speed live display are offered in 1 camera.

**DS-Ri2**
- Capable of expressing images as is, this microscope digital camera offers high-resolution, color reproduction, and frame rate.

**Frame Rate**
- 30 fps (1440×1024)
- 45 fps (1636×1088)

**Max Recordable Pixels**
- 2880×2048
- 4908×3264

**Imaging software NIS-Elements**

**Using a tablet PC**
- Simply installing NIS-Elements L on a tablet PC enables setting and control of DS-Fi3/DS-Ri2 microscope cameras, live image display, and image acquisition.

**A wide variety of tools**
- NIS-Elements L enables the conducting of simple measurements on images, with input of lines and comments. These can also be written onto and saved with the image, and measurement data can be output.

**Measurement function**
- Line distance
- Area
- Circle
- Circle distance
- High distance
- Arc

**Annotate function**
- Line
- Arrow
- Text
- Marker
- Polyline

**Scene Mode**
- Ten camera setting patterns for optimal color reproduction and contrast for each microscope light source, observation method and type of sample, as well as custom settings, can be selected.

- Wafer/IC
- Metal, Ceramic/Plastic
- Circuit board
- Flat Panel Display

**EFD (Extended Depth of Focus)**
- Create a single, all-in-focus image from images of differing focus.

Please refer to individual product brochures for further details.

---

Digital Sight Series

**DS-Fi3**

Create a single, all-in-focus image from images of differing focus.

**EDF (Extended Depth of Focus)**
- Stitches together images acquired from multiple fields of view to create one image.

**Using a desktop PC**
- DS-Fi3
- DS-Ri2

**Frame Rate**
- 45 fps (1636×1088)

**Max Recordable Pixels**
- 4908×3264

**BW-S500/BW-D500 Series**

Nikon’s proprietary scanning-type optical interference measurement technology achieves 1 pm height resolution. Nikon offers variety applications, lustrous surfaces, such as silicon wafer, glass and metallic deposition surfaces.

<table>
<thead>
<tr>
<th>High Speed Model</th>
<th>High Pixel Resolution Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>BW-D500 Series</td>
<td>BW-S500 Series</td>
</tr>
<tr>
<td>Height Resolution</td>
<td>1 pm</td>
</tr>
<tr>
<td>Algorithm</td>
<td>Step Height Measurement</td>
</tr>
<tr>
<td>Reproducibility</td>
<td>8.9 nm (8 µm Step height measurement)</td>
</tr>
<tr>
<td>Number of Pixels</td>
<td>510x510</td>
</tr>
<tr>
<td>Height Measurement Time</td>
<td>2 s (10 µm scan)</td>
</tr>
<tr>
<td>Field of view</td>
<td>&lt; 2,015x2,015 µm*</td>
</tr>
</tbody>
</table>

* The range can be extended by changing the relay lens or by stitching.

**Image Stitching**

- Using a tablet PC
- Using a desktop PC

**Height Accuracy and Repeatability**

The BW-S500/BW-D500 series is calibrated by an 8 nm or 8 µm VLSI Step Height Standards sample, certified by the NIST. Achieves extremely high accuracy and repeatability as a height measurement system.

**Measured value unsusceptible to variation of central wavelength of light source**

With Nikon’s proprietary technology, measurement values with the BW-S500/BW-D500 series are independent of central wavelength of light source. Measurements can be done immediately after switching on illumination source.

**3D Surface Profiler**

**BW-S500/BW-D500 Series**

**Measurement function**
- Line distance
- Area
- Circle
- Circle distance
- High distance
- Angle
- Line
- Arrow
- Text
- Marker
- Polyline

**Annotate function**
- Scene Mode

**TaN-camera setting patterns for optimal color reproduction and contrast for each microscope light source, observation method and type of sample, as well as custom settings, can be selected.**

**Polished ceramic surface**
- Metal Etching Surface
- Lens
- Glass
- Glossy paper

Please refer to individual product brochures for further details.
Objective Lenses

For Incorporation into Microscopes

Nikon’s CFI-2/CFL2 optical systems are highly evaluated for its unique concept of high NA combined with long working distance. These lenses have further evolved to achieve the apex in long working distance, correct chromatic aberration, and optimized lens weight.

- 50×: Long Working Distance Universal Plan
- 100×: Long Working Distance Universal Plan
- 150×: Super Long Working Distance Plan
- T: 300–100 um
- 50×: 0.75 0.5
- 20×: 0.4 3.6
- 10×: 0.25 13
- 5×: 0.1 31
- 100×: 0.8 3.7
- 50×: 0.7 3.9
- 10×: 0.2 37
- 5×: 0.15 23.5
- 100×: 0.6 10
- 50×: 0.4 22.0
- 20×: 0.3 30.0
- 10×: 0.3 17.5
- 5×: 0.15 23.5
- 150×: 0.9 1.5
- 100×: 0.9 2.0
- 50×: 0.8 2.0
- 100×: 0.9 1.0
- 50×: 0.8 1.0
- 20×: 0.45 4.5
- 10×: 0.3 17.5
- 5×: 0.15 23.5
- 2.5×: 0.075 6.5
- 1×: 0.03 3.8

For Incorporation into Microscopes

Modular Focusing Units

IM-4, LV-IMA/LV-IMA, LV-FM/LV-FMA

Suitable for incorporating into systems, these focusing units enable the mounting of a universal illuminator and a motorized nosepiece.

<table>
<thead>
<tr>
<th>Type</th>
<th>IM-4</th>
<th>LV-IMA/LV-IMA</th>
<th>LV-FM/LV-FMA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mount</td>
<td>Manual</td>
<td>Manual / Motorized</td>
<td>Manual / Motorized</td>
</tr>
<tr>
<td>WF/MF Stroke</td>
<td>30 mm</td>
<td>50/20 mm</td>
<td>30/20 mm</td>
</tr>
</tbody>
</table>

Dynamic Auto-Focus Unit

LV-DAF

Hybrid Auto-focus features a wide focus range and fast tracking ability. A wide range of observation methods are supported, including brightfield, darkfield, and DIC. Reflective and transparent samples can both be observed.

- AF Light Source: Near Infrared LED (λ=770 nm)
- DF: Darkfield
- BF: Brightfield
- DF: Darkfield
- DIC: Differential Interference Contrast
- Observation: Brightfield, Darkfield, Polarizing, DIC

Compact Reflected Microscopes

CM Series

Ultra-compact reflected microscopes designed for integration into production lines to observe on monitors.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tube Lens Magnification</td>
<td>0.5×</td>
<td>0.5x</td>
<td>0.5×</td>
</tr>
<tr>
<td>Compatible Objectives:</td>
<td>0.5×</td>
<td>0.5×</td>
<td>0.5×</td>
</tr>
<tr>
<td>Koehler illumination (high-quality telecentric illumination)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attachment Surfaces</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Wafer Loaders

Nikon’s proprietary technology ensures reliable loading of ultra-thin 100 µm wafers. The NWL 200 series achieve highly reliable loading, suitable for inspection of next-generation semiconductors.

- Water: Diameter: ø200 mm / ø150 mm
- Thickness (standard): 300 µm
- Thickness (option): 300–100 um
- Surface, back side macro inspection

Please refer to individual product brochures for further details.
CNC Video Measuring Systems

NEXIV Series

Wide variety of stage strokes and magnifications are available for various customer requirements.

Wide FOV Model

VMA

VMZ-R1045/VMA-4540/VMA-2510 Series

VMA-6555 Series

VMA-4540 Series

VMA-2520 Series

VMZ-R

VMZ-1040 Series

VMZ-H

VMZ-1030 Series

VMZ-1020 Series

Main Body (Type / Stage Stroke)

<table>
<thead>
<tr>
<th>Model</th>
<th>Wide FOV</th>
<th>Standard</th>
<th>High-precision</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMA</td>
<td>200×200 mm</td>
<td>200×200 mm</td>
<td>200×200 mm</td>
</tr>
<tr>
<td>VMA-6555</td>
<td>150×150 mm</td>
<td>150×150 mm</td>
<td>150×150 mm</td>
</tr>
<tr>
<td>VMA-4540</td>
<td>100×100 mm</td>
<td>100×100 mm</td>
<td>100×100 mm</td>
</tr>
<tr>
<td>VMA-2520</td>
<td>50×50 mm</td>
<td>50×50 mm</td>
<td>50×50 mm</td>
</tr>
<tr>
<td>VMZ-R</td>
<td>200×200 mm</td>
<td>150×150 mm</td>
<td>100×100 mm</td>
</tr>
<tr>
<td>VMZ-1040</td>
<td>150×150 mm</td>
<td>100×100 mm</td>
<td>50×50 mm</td>
</tr>
<tr>
<td>VMZ-H</td>
<td>150×150 mm</td>
<td>100×100 mm</td>
<td>50×50 mm</td>
</tr>
</tbody>
</table>

Zoom Heads

Type A

Wide FOV and long working distance enables comfortable operation. Laser AF and Touch Probe can be attached as optional accessories.

*Touch Probe is an option only for VMA series.

Type 1–4

Equipped with top, bottom, and oblique ring lights with adjustable angles. TTL (Through The Lens) Laser AF is a standard tool that can scan surfaces at 1000 points/second.

Type TZ

Equipped with 1–10× ultra high zoom ratio with 8 steps. Suitable for measurements of small targets up to several micrometers.

High-precision Model

VMZ-H

VMZ-1030 Series

VMZ-1020 Series

Zoom Heads

<table>
<thead>
<tr>
<th>Model</th>
<th>Wide FOV</th>
<th>Standard</th>
<th>High-precision</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMA</td>
<td>200×200 mm</td>
<td>200×200 mm</td>
<td>200×200 mm</td>
</tr>
<tr>
<td>VMA-6555</td>
<td>150×150 mm</td>
<td>150×150 mm</td>
<td>150×150 mm</td>
</tr>
<tr>
<td>VMA-4540</td>
<td>100×100 mm</td>
<td>100×100 mm</td>
<td>100×100 mm</td>
</tr>
<tr>
<td>VMA-2520</td>
<td>50×50 mm</td>
<td>50×50 mm</td>
<td>50×50 mm</td>
</tr>
<tr>
<td>VMZ-R</td>
<td>200×200 mm</td>
<td>150×150 mm</td>
<td>100×100 mm</td>
</tr>
<tr>
<td>VMZ-1040</td>
<td>150×150 mm</td>
<td>100×100 mm</td>
<td>50×50 mm</td>
</tr>
<tr>
<td>VMZ-H</td>
<td>150×150 mm</td>
<td>100×100 mm</td>
<td>50×50 mm</td>
</tr>
</tbody>
</table>

Confocal NEXIV Series

Simultaneous wide-area height measurements with confocal optics and 2D measurement with 15× brightfield zoom optics.

Main Body (Type / Stage Stroke)

<table>
<thead>
<tr>
<th>Model</th>
<th>Wide FOV</th>
<th>Standard</th>
<th>High-precision</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMZ-K3040</td>
<td>300×400 mm</td>
<td>200×200 mm</td>
<td>200×200 mm</td>
</tr>
<tr>
<td>VMZ-K6555</td>
<td>650×550 mm</td>
<td>650×550 mm</td>
<td>650×550 mm</td>
</tr>
</tbody>
</table>

Zoom Heads

Type B

0.5×

1.5×

3×

7.5×

10×

20×

Type H

0.1×

0.5×

1×

5×

10×

20×

High Contrast and Multileveled Sample (PCBs)

Brightfield observation can sometimes be difficult due to blurred lines along sample structure. These lines can be clearly observed and measured using Confocal optics.

Thin Transparent Samples (Metal Surface Film / Semiconductor Resist)

Top layers of both thin transparent film and metal surface can be easily detected using Confocal optics.
Data Processing Systems for Measuring Microscopes and Profile Projectors

**Measuring Microscopes**

Focused on high-precision and easy operability, a wide range of MM-products are available.

<table>
<thead>
<tr>
<th>Compact Model</th>
<th>Basic Model</th>
<th>Large-Stage Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM-200</td>
<td>MM-400</td>
<td>MM-800</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage Size/Loading Capacity</th>
<th>50x50mm / 5kg</th>
<th>100x100mm / 15kg</th>
<th>150x150mm / 15kg</th>
<th>200x150mm / 20kg</th>
<th>250x150mm / 20kg</th>
<th>300x200mm / 20kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Workpiece Height</td>
<td>110mm</td>
<td>150mm</td>
<td>200mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optical Head</td>
<td>Monocular</td>
<td>Binocular</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X-Y-Z</td>
<td>2-axis</td>
<td>3-axis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CCG</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obj. Magnification</td>
<td>1x/3x/5x/10x</td>
<td>1x/3x/5x/10x</td>
<td>1x/3x/5x/10x/20x/50x/100x/200x</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*For simple video head only

**MM Type**

With Nikon’s optical technology and newly developed stages, high-precision measurement can be achieved.

**Newly Developed High-Precision Stages**

The coarse/fine changeover lever and the RESET and SEND buttons are located near the X- and Y-axis knobs.

**Focusing Aid (FA)**

The newly developed Split-Prism FA delivers sharp patterns to allow accurate focusing during Z-axis measurements. FA patterns are clearly visible because they are split vertically.

**Profile Projectors**

Nikon’s profile projectors apply the principles of optics to the inspection of manufactured parts by projecting magnified silhouettes on a screen.

**Data Processing Software**

E-MAX

Provides the user with various advanced measurements and processing functions. Automated edge detection with sub-pixel processing enables more precise and repeatable measurements.

**Data Processor**

DP-E1A

Effectively used with a measuring microscope/profile projector, it quickly calculates and processes measurement data. Feature Oriented Operation of the DP-E1A allows the user to conduct measurements with the graphics, providing a seamless measuring environment.

**Data Processor**

Connected with profile projector, retrofit counter and DP units are required.

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Please refer to individual product brochures for further details.
Autocollimators

Autocollimator is an easy-to-use but precise metrology instrument for angularity, parallelism, perpendicularity, straightness of precision components machine guideway and many other applications.

**Optical Flat**

The optical flat is used to check the flatness level of a surface provided with mirror-smooth finish. Flatness level can be measured by observing interference fringes by placing the optical flat in contact with the workpiece.

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Glass (ø60 mm)</th>
<th>Glass (ø130 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness</td>
<td>15 mm</td>
<td>27 mm</td>
</tr>
<tr>
<td>Flatness</td>
<td>0.1 µm</td>
<td>0.1 µm</td>
</tr>
</tbody>
</table>

**Optical Parallel**

Both planes of the optical parallel have been precisely finished flat and parallel. It is used to check the flatness and parallel levels of a workpiece by observing interference fringes by placing the optical parallel in contact with the workpiece.

<table>
<thead>
<tr>
<th>Diameter</th>
<th>30 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness</td>
<td>12 mm / 12.12 mm / 12.25 mm / 12.37 mm</td>
</tr>
<tr>
<td>Flatness</td>
<td>within 0.1 µm</td>
</tr>
<tr>
<td>Parallelism</td>
<td>within 0.2 µm</td>
</tr>
</tbody>
</table>

*Optical flats and parallels with greater precision are available by custom orders.

**Standard 300mm Scale**

Gauges stage travel accuracy up to 300 mm. Both 10 mm-interval sensor patterns and calibrations are provided. Made of the glass with low coefficient of thermal expansion, for minimizing thermal influence.

*Within 1 µm against compensation values.

**DIGIMICRO**

With built-in photoelectric digital length measuring systems, DIGIMICRO offers flawless contact measurements of dimension, thickness, and depth.

<table>
<thead>
<tr>
<th>Main Unit</th>
<th>MF-1001</th>
<th>MF-501</th>
<th>MH-15M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring Range</td>
<td>0–100 mm</td>
<td>0–50 mm</td>
<td>0–15 mm</td>
</tr>
<tr>
<td>Accuracy (µm)</td>
<td>1 µm</td>
<td>1 µm</td>
<td>0.7 µm</td>
</tr>
<tr>
<td>Measuring Force</td>
<td>Downward direction 1.225 N, lateral 0.637 N to 1.225 N</td>
<td>Downward direction 1.127 N, lateral 0.637 N to 1.225 N</td>
<td>Upward direction 0.245 N, lateral 0.637 N, downward 0.637 N, lateral 0.441 N</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0 to 40˚C</td>
<td>0 to 40˚C</td>
<td>0 to 40˚C</td>
</tr>
</tbody>
</table>

Please refer to individual product brochures for further details.
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*Products: Hardware and its technical information (including software)

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

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