ECLIPSE MA200
MA100N
Inverted Metallurgical Microscopes
Designated for brightfield and simple polarizing observation, the MA100 is a
cost-effective solution to manufacturing and QA/QC situations in industries
such as automotive/electronic parts and industrial machinery/tools.

### Features

#### MA200

Offers high stability, durability, and a smaller footprint than conventional
models, as well as easy access to the stage handle, the nosepiece, the
BF/DF change lever, and diaphragms, all located on the front side.

<table>
<thead>
<tr>
<th>Compatible observation methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brightfield</td>
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* Only available with Halogen Lamp and Fiber Illumination.

<table>
<thead>
<tr>
<th>Compatible illuminators</th>
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<tbody>
<tr>
<td>- LV-LH50PC 12V50W Halogen Lamp Illuminator</td>
</tr>
<tr>
<td>- C-HGFI HG Precentered Fiber Illuminator (option)</td>
</tr>
<tr>
<td>- LV-LL LED Lamphouse</td>
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<th>Magnification module</th>
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<tr>
<td>- MA2-SR Mechanical Stage (stroke: 50 x 50 mm)</td>
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<tr>
<td>- High-intensity white LED Illuminator (internal power supply)</td>
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<tr>
<td>- MA-SR-N Rectangular 3-plate Stage N (stroke: 50 x 50 mm)</td>
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<tr>
<td>- MA-SP-N Plain Stage N</td>
</tr>
<tr>
<td>- TS2-S- SM Mechanical Stage (stroke: 126 x 78 mm)</td>
</tr>
</tbody>
</table>

* Please use in combination with MA-SP-N Plain stage N.
**Front Operation**
Delivers ease-of-use by placing all important controls at the front of MA200N.

**Evolved Optical Performance**
Provides a more ergonomic observation with clearer images.

**Box Structure**
The unique box structure is 1/3 smaller than conventional models and offers improved durability.

**Polarizing Units**
Polarizing observation is effective for birefringence samples. MA2-PA unit is suitable for observation of aluminium.

**DIC Units**
Standard and high contrast type DIC prisms are available to match needs of the sample. These prisms are effective for observation of minute step heights.

**Illumination**
Expanded lineup
Added a compact LED illuminator to the existing lineup. With the use of LED, Nikon illuminators are power saving and achieve long life.

**Stage**
Samples can be rotated by the stage clip. The stage delivers high durability needed to support heavy samples.

**Grain Size Reticle & Scale**
Overlays a pattern onto the observed image. The Grain Size Reticle is used for grain size analysis and complies with the JIS G0551 and ASTM E112 standards. The Scale displays a scale for each objective lens magnification.

**Nosepiece & Magnification Module**
Enables communication of objective lens position, magnification and intermediate magnification module information with the NIS-Elements image software.

**Accessories**
A full lineup is available that correspond to a variety of sample shapes.

**Digital Camera**
The MA200 allows detection of information and control of objective lenses, enabling optimization of the conditions vital for image acquisition.

**Note:** With NIS-Elements L and F, functions above are not available. Use NIS-Elements D/Br/Ar.
**ECLIPSE MA100N**

A durable, user-friendly Inverted Microscope with superior image quality, a small footprint and great cost performance.

### Illumination

**Employment of high-intensity LED illumination (Eco-illumination)**

Compared to conventional halogen illumination, these high intensity LED sources need only about one third of consuming electricity and last approximately 30 times longer. The MA100N ensures stable sample observation with uniform color temperature even in different light intensity.

### Stage

**Controlled stability even with heavy samples/ Boasts superior durability**

The MA-SR-N Rectangular Stage was developed especially for the MA100N. The three-plate structure allows for observation of heavy samples, such as a grinder resin mounted samples.

### Compact Body

**Redesigned to be smaller**

Designed for LED illumination, the footprint is 11% smaller than conventional models, allowing users to have more installation choices.

### Aperture Diaphragm

**Standard with MA100N**

The epi illuminator comes standard with a variable aperture diaphragm to control image contrast and depth of field.

### Accessories

#### Basic stage set

A triple-platform stage structure lets you use heavy samples.

- MA-SR-N Rectangular Stage N
- Specimen Holder ø20/30/40 mm (optional)
- MA-SH3 Specimen Holder 3
- MA-SRSH: Universal Specimen Holder

#### Grain size reticle

The class of grain size in a sample can be easily distinguished while observing its image.

- MA100-EPRGS Grain Size Reticle

#### Digital Camera

Redesigned with optical systems suitable for sample observations. The camera port is located on the side of MA100N to provide improved visibility of the stage.

- Microscope Camera DS-F3
- C-0.63x-TS2 C-mount Adapter
- TS2-P-CF Camera port 100

#### Other accessories

- Ti-SM Mechanical Stage CH
- MA-SIP-N Plain Stage N
- MA-SHQ-N Specimen Holder 2N
- MA-S-HU Universal Holder
- MA-SH3 Specimen Holder 3
- MA-SRSH 25-40 Holder
- MA-SRSH1 Universal Specimen Holder
- MA-SH1 Specimen Holder 1N
- MA-P/A Simple Polarizer

#### Employment of high-intensity LED illumination (Eco-illumination)

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- MA-SRSH1 Universal Specimen Holder
- MA-SH1 Specimen Holder 1N
- MA-P/A Simple Polarizer
**Accessories**

Nikon’s CF60 optical system, highly evaluated for its unique concept of high NA and long working distance, has achieved the apex in long working distance, chromatic aberration correction, and light weight.

**Standard objective lenses**

**TU Plan Fluor Series**
- 5x/10x/20x/50x/100x
- Enable brightfield, darkfield, simple polarization, sensitive polarizing, differential interference, and epi-fluorescence observations with just one lens.
- Achieves superior chromatic aberration performance with long working distance for all magnifications to adapt to any application.

**TU Plan EPI Series**
- 1x/2.5x
- Both clear observation using a conventional analyzer/polarizer and operability-oriented observation without the need of an analyzer/polarizer are possible.

**TU Plan Apo Series**
- By using phase Fresnel lenses, these objective lenses achieve significantly longer operating distances while maintaining the superior chromatic aberration performance of apochromatic lenses.

**Long working distance objective lenses**

**TU Plan ELWD Series**
- 20x/50x/100x
- With the phase Fresnel lenses, these objective lenses enable long working distances while offering higher level chromatic aberration correction than conventional objective lenses. This improves operability for samples with different heights.

**Low-magnification objective lenses**

**T Plan**
- 1x/2.5x
- Both clear observation using a conventional analyzer/polarizer and operability-oriented observation without the need of an analyzer/polarizer are possible.

**Apochromatic objective lenses**

**TU Plan Apo Series**
- 50x/100x/150x
- By using phase Fresnel lenses, these objective lenses achieve significantly longer operating distances while maintaining the superior chromatic aberration performance of apochromatic lenses.

**Other Lenses**

**CFI L Plan EPI 40x**
- A 40x objective lens is best for metal analysis.
- NA: 0.65 W.D.: 1.0 mm

**Digital camera system for microscopes**

**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.

**NIS-Elements**
- Measurement function
  - Line distance
  - Area
  - Angle
  - Circle
  - Circle distance
  - Pitch distance
- Annotate function
  - Line
  - Arrow
  - Text
  - Marker
- 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.
  - *See the “Digital Camera Digital Sight Series for Microscopes” brochure for details on Digital Sight features.*

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*2: T Plan EPI 1x/2.5x enable clear observation using a conventional analyzer/polarizer,
as well as operability-oriented observation without need for an analyzer/polarizer.

System Diagram (MA200)

System Diagram (MA100N)

Dimensions
## Specifications (MA200)

<table>
<thead>
<tr>
<th><strong>Main body</strong></th>
<th><strong>MA200</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Focusing mechanism</td>
<td>Focusing nosepiece (Fixed stage) Coaxial coarse/fine adjustment knob (torque adjustable)</td>
</tr>
<tr>
<td>Coarse adjustment of 4.0 mm per rotation, fine adjustment of 0.1 mm per rotation</td>
<td></td>
</tr>
<tr>
<td>Illumination</td>
<td>With flare prevention. Built in UV cut filter</td>
</tr>
<tr>
<td>Field diaphragm: dialing continuous variable (centerable), Aperture diaphragm: dialing continuous variable (centerable)</td>
<td></td>
</tr>
<tr>
<td>Filter: Double turret (ND16, ND4/GIF, NCB, Additional option available), Polarizing block (Selectible with or without 1/4 JPlate)</td>
<td></td>
</tr>
<tr>
<td>Fluorescence filter blocks: B/G/TV/UV</td>
<td></td>
</tr>
<tr>
<td>12V50W Halogen Lamp, C-HGF1 HG Fiber Illuminator, LV-LL LED Lumphouse</td>
<td></td>
</tr>
<tr>
<td>Light distribution</td>
<td>Eyepiece tube/Back port: 100/0, 55/45</td>
</tr>
<tr>
<td><strong>Optics</strong></td>
<td><strong>CFlx/CFlx=2 system</strong></td>
</tr>
<tr>
<td><strong>Observation image</strong></td>
<td>Surface Image</td>
</tr>
<tr>
<td><strong>Observation method</strong></td>
<td>Brightfield/Darkfield/Simple Polarizing/DIC/Epi-Fluorescence</td>
</tr>
<tr>
<td><strong>Revolving nosepieces</strong></td>
<td>LV-NUSL: Bright/Darkfield/DIC 5 position nosepiece, LV-NUSA: Motorized Bright/Darkfield/DIC 5 position nosepiece</td>
</tr>
<tr>
<td><strong>Stage</strong></td>
<td>MA-N7 Brightfield 7 position nosepiece (Intelligent)</td>
</tr>
<tr>
<td><strong>Trinocular eyepiece</strong></td>
<td>Siedentopf inter pupillary distance adjustment 50-75 mm</td>
</tr>
<tr>
<td><strong>Power source</strong></td>
<td>100-240 V, 50-60 Hz</td>
</tr>
<tr>
<td><strong>Power consumption (max.)</strong></td>
<td>1.2 A 7.5 W</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Approx. 28 kg (depends on combination)</td>
</tr>
<tr>
<td><strong>Options</strong></td>
<td>Intermediate magnification: Turret (1x, 1.5x, 2x), Status detection (Output magnification information to main unit)</td>
</tr>
<tr>
<td><strong>Scale</strong></td>
<td>MA-2G-PR Grain Reticle (ASTM E112-63 grain sizing numbers 1 to 8), Grid Reticle(20 lines, 0.5 mm)</td>
</tr>
<tr>
<td>MA-MR Scale Reticle (compatible with 5-100x, Read in um, Dialing System)</td>
<td></td>
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## Specifications (MA100N)

| **Optics** | **CFlx/CFlx=2 system** |
| **Observation image** | Reversed image |
| **Observation method** | Brightfield and polarization (with MA P/A simple polarizer/analyser set) |
| **Focusing** | Focusing nosepiece (Fixed stage), coaxial coarse/fine adjustment knob with 8.5-mm stroke |
| (Coarse adjustment of 37.7 mm per rotation, fine adjustment of 0.2 mm per rotation) |
| **Nosepiece** | Brightfield 5-position nosepiece |
| **Stage** | MA-NR-3 Rectangular 3-stage Stage: N: 50-50 mm stroke (includes two stage inserts ø20 mm and 40 mm opening) and coaxial control handle on the right side |
| The 3-stage design allows entire top surface to move. Optional Stage inserts: MA-SRSH1 Specimen Holder 1 with ø15 mm opening or MA-SH3 Specimen Holder 3 with 2 mm to 32 mm adjustable opening |
| **Illuminator** | LV-NUSL: Bright/Darkfield/DIC 5 position nosepiece, LV-NUSA: Motorized Bright/Darkfield/DIC 5 position nosepiece |
| **Light source** | Internal power supply white LED light source, condenser built-in (lever operated) |
| **Options** | Built-in Siedentopf binocular, 45° inclination angle and 50 to 75-mm interpupillary adjustment, attachable camera port, eyepiece/Port: 100/0, 55/45 |
| **Scale** | MA-2G-PR Grain Reticle (ASTM E112-63 grain sizing numbers 1 to 8), Grid Reticle(20 lines, 0.5 mm) |
| MA-MR Scale Reticle (compatible with 5-100x, Read in um, Dialing System) |

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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.

ISO 14001 Certified for NIKON CORPORATION

ISO 9001 Certified for NIKON CORPORATION Industrial Metrology Business Unit

NIKON CORPORATION

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https://www.nikon.com/products/industrial-metrology/