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>
<th>Brightfield</th>
<th>Darkfield</th>
<th>Simple polarizing</th>
<th>DIC</th>
<th>Fluorescence</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>DIA illuminator is available for transmitted light observation.</em></td>
<td>DIA: only available with Halogen Lamp and Fiber Illumination</td>
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</tr>
</tbody>
</table>

**Compatible illuminators**

- LV-LH50PC 12V50W Halogen Lamp Illuminator
- C-HGFI HG Precentered Fiber Illuminator (option)
- LV-LL LED Lamphouse

**Magnification module**

- 1x/1.5x/2x

**Compatible stages**

- MA2-SR Mechanical Stage (stroke: 50 x 50 mm)

**MA100N**

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</tbody>
</table>

**Compatible stages**

- MA-SR-N Rectangular 3-plate Stage N (stroke: 50 x 50 mm)
- MA-SP-N Plain Stage N
- TS2-S- SM Mechanical Stage (stroke: 126 x 78 mm)

*Please use in combination with MA-SP-N Plain stage N.

**Dedicated reflected illumination models.**

- High-intensity white LED Illuminator (internal power supply)

*Please note that some models are only available with Halogen Lamp and Fiber Illumination.
Polarizing Units

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

Single-action operation

Links the attachment/release of the analyzer/polarizer.

DIC Units

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

Even illumination

Improved uniformity of illumination delivers clear images, especially for digital imaging.

Combine images with the stitching feature

Can combine up to eight images with uniform lighting and no seams.

TME300 (Conventional model) MA200

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

Compact structure with a depth of 315 mm

A box shaped microscope, not only the width but also the depth is reduced dramatically. The lost print is only one-third of the conventional model!

High stability and durability

Reduced vibration during high-power observation, offering a highly rigid microscope.

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.

Super-wide field of view

A sample with a diameter of just 25 mm can be observed in an one field of view by combining the ultra wide field of view eyepiece and 1x objective lens.

Semi-Apochromat Wide field of view

Even illumination

Improved uniformity of illumination delivers clear images, especially for digital imaging.

Combine images with the stitching feature

Can combine up to eight images with uniform lighting and no seams.

Digital Camera for microscopes

Detection of objective lens information

Automatic calibration conversion

Control of objective lens

Digital camera for microscopes

Detection of objective lens information

Auto-calibration conversion

Combination with Digital Camera

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

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.

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.

Notes: With NIS-Elements L and F, functions above are not available. Use NIS-Elements D/B/A.

MA200's field

MA2-PA Unit MA2-UPA Unit*

* It is suitable for inspecting aluminium sample.

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MA2-PA Unit MA2-UPA Unit*

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Note: With NIS-Elements L and F, functions above are not available. Use NIS-Elements D/B/A.
The epi illuminator comes standard with a variable aperture diaphragm to control image contrast and depth of field.

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.

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

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.

Redesigned to be smaller

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

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

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-FI3
c0.63x-TS2 C-mount Adapter
TS2-P-CF Camera port 100

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

MA100-EPRGS Grain Size Reticle

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.
Nikon's CFI60 optical systems are highly evaluated for their unique concept of high NA combined with a long working distance. These lenses have been developed further and evolved achieving the apex in long working distance specifications, correct chromatic aberration, and an optimized lens weight.

Standard objective lenses
TU Plan Fluor Series

Enable brightfield, darkfield, simple polarizing, 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.

Low-magnification objective lenses
T Plan EPI

Both clear observation using a conventional analyzer/polarizer and operability-oriented observation without the need of an analyzer/polarizer are possible.

Achromatic objective lenses
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

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.

Other Lenses
Brightfield objective lens

A 40x objective lens is best for metal analysis.
NA: 0.65 W.D.: 1.0 mm
as well as operability-oriented observation without need for an analyzer/polarizer.

*2: T Plan EPI 1x/2.5x enable clear observation using a conventional analyzer/polarizer.

System Diagram

**System Diagram (MA200)**

**System Diagram (MA100N)**

Dimensions

**MA200**

**MA100N**
### Specifications (MA200)

<table>
<thead>
<tr>
<th>Main body</th>
<th>Focusing mechanism</th>
<th>Coarse adjustment of 4.0 mm per rotation, fine adjustment of 0.1 mm per rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illumination</td>
<td>With flare prevention, Built-in UV cut filter</td>
<td>Field diaphragm: dialing continuous variable (centerable), Aperture diaphragm: dialing continuous variable (centerable)</td>
</tr>
<tr>
<td>Resolving power (nosepiece)</td>
<td>LV-NUSC: Bright/Darkfield/DIC 5 position nosepiece, LV-NUSA: Motorized Bright/Darkfield/DIC 5 position nosepiece</td>
<td></td>
</tr>
<tr>
<td>Stage</td>
<td>MA-28R Mechanical Stage (X/Y flexible handle)</td>
<td>Dimension: 295×215 mm, Stroke: 50 mm×50 mm (with distance graduation), Standard accessory: ø22 universal specimen holder (with sample clip)</td>
</tr>
<tr>
<td>Trinocular eyepiece</td>
<td>Siedentopf inter-pupillary distance adjustment 50-75 mm</td>
<td></td>
</tr>
<tr>
<td>Power source</td>
<td>100-240 V, 50-60 Hz</td>
<td></td>
</tr>
<tr>
<td>Power consumption (max.)</td>
<td>Approx. 26 kg (depends on combination)</td>
<td></td>
</tr>
<tr>
<td>Options</td>
<td>Intermediate magnification: Turret (1x, 1.5x, 2x), Status detection (Output magnification information to main unit)</td>
<td></td>
</tr>
<tr>
<td>Scale</td>
<td>MA-GR Grain Reticle (ASTM E112-63 grain sizing numbers 1 to 8), Grid Reticle (20 lines, 0.5 mm)</td>
<td></td>
</tr>
</tbody>
</table>

### Specifications (MA100N)

| Optics | CFIle/CFIle-2 system |
| Observation image | Reversed image |
| Observation method | Brightfield and polarization (with MA PIA simple polarizer/analyzer 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-SR-N Rectangular 3-plate 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-plate design allows the 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 |
| MA-SP-N Plain Stage N: 188×310 mm - Includes two stage inserts (1) clear acrylic stage insert with ø30 mm opening, (2) clear acrylic stage insert with crescent opening (width 30 mm) to allow clearance for rotation of high magnification objectives |
| Optional stage inserts: MA-SRSH1 Specimen Holder 1 with 15 mm opening or MA-SH3 Specimen Holder 3 with 2 mm to 32 mm adjustable opening |
| Accepts Attachable Mechanical Stage T-Sl |
| TS2-S-SM Mechanical Stage: 126 mm×78 mm stroke, handle can be attached on the right or left side of the plain stage |
| Optional Specimen Holders to fit Attachable Mechanical stage: MA-SHT-N Specimen Holder 1N (ø15 mm opening) |
| MA-SH2-N Specimen Holder 2N (ø30 mm opening), or C-S-HU Universal Holder (30 mm to 65 mm adjustable opening) |
| Illuminator | Internal power supply white LED light source, condenser built-in (lever operated), ø25 mm filter can be inserted |
| Binocular body | Built-in Siedentopf binocular, 45 inclination angle and 50 to 75-mm inter-pupillary adjustment, attachable camera port, eyepiece/Port: 100/0/0/100 |
| Power consumption (max.) | 15W |
| Weight | Approx. 10 kg |

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**Specifications and equipment are subject to change without any notice or obligation on the part of the manufacturer.**

N.B. Export of the products in this brochure is controlled under the Japanese Foreign Exchange and Foreign Trade Law. Appropriate export procedures shall be required in case of export from Japan.

*Products: Hardware and its technical information (including software)*

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