Motic®

30+ YEARS

LS

# LIFE SCIENCES

SELECTED PRODUCTS FOR LIFE SCIENCE APPLICATIONS IN YOUR LABORATORY

| | |
|---|---|
| **INTRODUCTION** | **02** |
| BA210 SERIES | 04 |
| BA310 SERIES | 06 |
| BA410E SERIES | 08 |
| AE2000 SERIES | 10 |
| AE31E SERIES | 12 |
| SMZ161 SERIES | 14 |
| SMZ171 SERIES | 16 |
| MOTICAM SERIES | 18 |
| SPECIFICATIONS | 20 |


◀ CONTENTS

**LIFE SCIENCES**
CATALOGUE

Motic was established in 1988 as a high-tech enterprise specialized in manufacturing conventional compound microscopes. Owned by Speed Fair Co., Ltd, the company has grown into a global brand with sales offices in Canada, Germany, Hong Kong, Spain and the United States.

Within this catalogue, Motic likes to present selected offerings for all kind of Life Science applications in your laboratory.

The BA series of Upright microscopes is designed for advanced school and university usage as well as demanding research work. Motic's CCIS© Infinity Optics ensures superb image results for students and scientists.

Our AE series of Inverted microscopes is meant for any live cell application in microbiology labs of universities and pharmaceutical industry.

Stereo microscopes are cosmopolitans as well as ubiquists: No scientific teaching nor laboratory work can be imagined without. Motic's SMZ series of stereo microscopes delivers powerful instruments for any kind of 3-D visualization.

All microscopes offered by Motic have the potential to become a digital work station by integrating our CMOS cameras, equipped with self-developed software. As an integrated solution or as an add-on: we envision this digitalisation of our microscopes to empower you for the tasks of today and tomorrow.

The following pages contain our lines of Life Science microscopes for your study. We also welcome you to become more acquainted with our products by visiting www.moticeurope.com or contacting your local Motic representative.

*Your Motic Europe Team*

# LIFE SCIENCES

## SELECTED PRODUCTS FOR LIFE SCIENCE APPLICATIONS IN YOUR LABORATORY

# BA210 SERIES

BASIC BIOLOGICAL MICROSCOPE

INTRODUCTION
**BA210 SERIES**
BA310 SERIES
BA410E SERIES
AE2000 SERIES
AE31E SERIES
SMZ161 SERIES
SMZ171 SERIES
MOTICAM SERIES
SPECIFICATIONS

# BASIC UPRIGHT MICROSCOPE FOR TEACHING ENVIRONMENTS

The BA-210 microscopes are basic, yet powerful instruments for all teaching environments in schools and universities. Based on Motic's CCIS© Infinity Optical System, they deliver crisp and clear images, thus enabeling an effective training in all biological and medical curricula.

A small footprint, easy grip for carrying and a convenient power cord storage prove Motic's dedication to the special demands of educational environments.

The Elite version of BA-210 is a refined microscope with EC-Plan Achromat objectives for improved color fidelity, field flatness and contrast. A rackless stage gives even more safety to unexperienced users. LED & Halogen light source can easily be interchanged. A RoHS compliant manufacturing process prohibits student contact to lead-containing materials.

All BA-210 models are upgradeable with Phase contrast and POL contrast, giving access to more advanced microscopic methods.

HAL LED

# BA310 SERIES

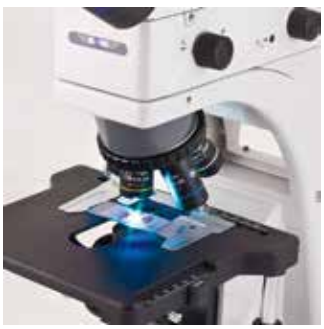
ADVANCED BIOLOGICAL MICROSCOPE

INTRODUCTION
BA210 SERIES
**BA310 SERIES**
BA410E SERIES
AE2000 SERIES
AE31E SERIES
SMZ161 SERIES
SMZ171 SERIES
MOTICAM SERIES
SPECIFICATIONS

# ADVANCED BIOLOGICAL MICROSCOPE FOR UNIVERSITY AND LABORATORIES

The BA-310 models are advanced Upright microscopes for university and laboratory. Routine laboratory work as well as ambitious teaching in all biomedical fields can easily be performed. Full Koehler illumination is implemented for examination of low-contrast samples. A most flexible Phase contrast, Darkfield and POL contrast as well as Multi-Viewing-Devices are ready for junior research work.

The BA-310 Elite microscopes furthermore are prepared for a turn-key Fluorescence solution with LED light source. Easy usage and secure handling - the Fluorescence method now can be implemented in education programs of medical schools. Optional Non-Cover-Glass (NCG) objectives, designed for non-covered slide samples, enlarge the application spectrum for fast examination of smears and aspirates.



# BA410E SERIES

CLINICAL & LAB MICROSCOPE PLATFORM

INTRODUCTION
BA210 SERIES
BA310 SERIES
**BA410E SERIES**
AE2000 SERIES
AE31E SERIES
SMZ161 SERIES
SMZ171 SERIES
MOTICAM SERIES
SPECIFICATIONS

# MICROSCOPE PLATFORM WITH SUPERB IMAGING OPTIONS

The Elite version of Motic's established BA410 flagship model displays the highest level of optical performance. A complete set of Plan Apochromatic lenses is now available for maximum demands in colour reproduction and resolution. The BA410E allows a profound diagnosis in pathology, haematology and cytology with their requirements for best colour fidelity. Increased Numerical Apertures provide an expanded resolution power for a more detailed specimen evaluation.

The AUTO ON-OFF function with its energy-saving aspect improves lab safety: a final instrument check before closing time is no longer necessary. A light memory function, based on a coded 6-fold nosepiece, memorizes the light intensity of each nosepiece position. When changing to a specific objective, the last illumination setup of this position is recalled. Once coordinated, there is no need to adjust the illumination when changing magnification. For increased illumination power, a 100W Halogen version is available.

The rackless stage concept, well known from BA210/BA310 Elite models, is now adopted in this flagship model. A ceramic stage insert for highest abrasion resistance guarantees a perfectly flat placing of the glass slide for a lifetime.

# AE2000 SERIES

ROUTINE LIVE CELL MICROSCOPE

INTRODUCTION
BA210 SERIES
BA310 SERIES
BA410E SERIES
**AE2000 SERIES**
AE31E SERIES
SMZ161 SERIES
SMZ171 SERIES
MOTICAM SERIES
SPECIFICATIONS

# BASIC MICROSCOPE FOR MICROBIOLOGY

The AE-2000 Inverted microscopes are intelligent and smart instruments for routine live cell studies in microbiology. Easy to use, a clever Phase contrast setup (one illumination ring for 10X up to 40X objectives) helps to eliminate handling errors. Powerful Long-Working distance objectives from Motic's CCIS© System are prepared to deliver perfect image results with adherend and floating cell cultures in petri dishes and well plates. An optional 4X Phase objective enables fast screening of large areas.

Excellent manucfacturing quality ensures maximum satisfaction and reliability during daily work. Easy interchangeability of Halogen and LED light source is guaranteed by a simple "pull out-plug in" of the respective illumination device.

With an innovative energy-saving AUTO ON-OFF function (IR-sensor based), the AE-2000 is GoingGreen, completely fulfilling the RoHS rules how to treat hazardous substances.

# AE31E SERIES

UPGRADEABLE LIVE CELL MICROSCOPE PLATFORM

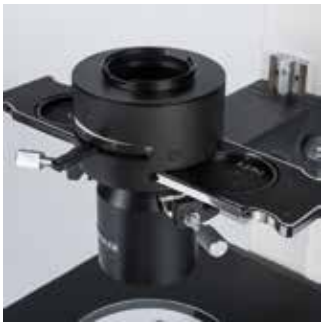
INTRODUCTION
BA210 SERIES
BA310 SERIES
BA410E SERIES
AE2000 SERIES
**AE31E SERIES**
SMZ161 SERIES
SMZ171 SERIES
MOTICAM SERIES
SPECIFICATIONS

# REFINED LIVE CELL MICROSCOPE PLATFORM

The AE31 Elite is a refined inverted microscope with an extended focus on practical aspects. The AUTO ON-OFF via IR sensor is implemented now; no need for a final check before leaving the lab. The energy-saving aspect of this feature is valid all the working day. The new Light Memory function, based on an encoded 5-fold nosepiece, will recall the last light intensity setup when changing to the respective objective. Once aligned, no need to adjust the illumination when changing the magnification.

To harmonize the optical setup of our CCIS© Infinity concept, the AE31 Elite works with the newest generation of LWD Plan Achromatic lenses: Only one Phase ring is needed for Phase 10X up to 40X; the objective Phase 4X for fast screening is available as an option.

The tube lens configuration is in harmony with the complete BA series of Upright microscopes. From this series, all accessories like c-mounts, additional eyepieces, etc. can be used without restriction on AE31E. A fully corrected intermediate image is ready for digital access. Upgrade options like Fluorescence are still strong features within this Inverted microscope series.

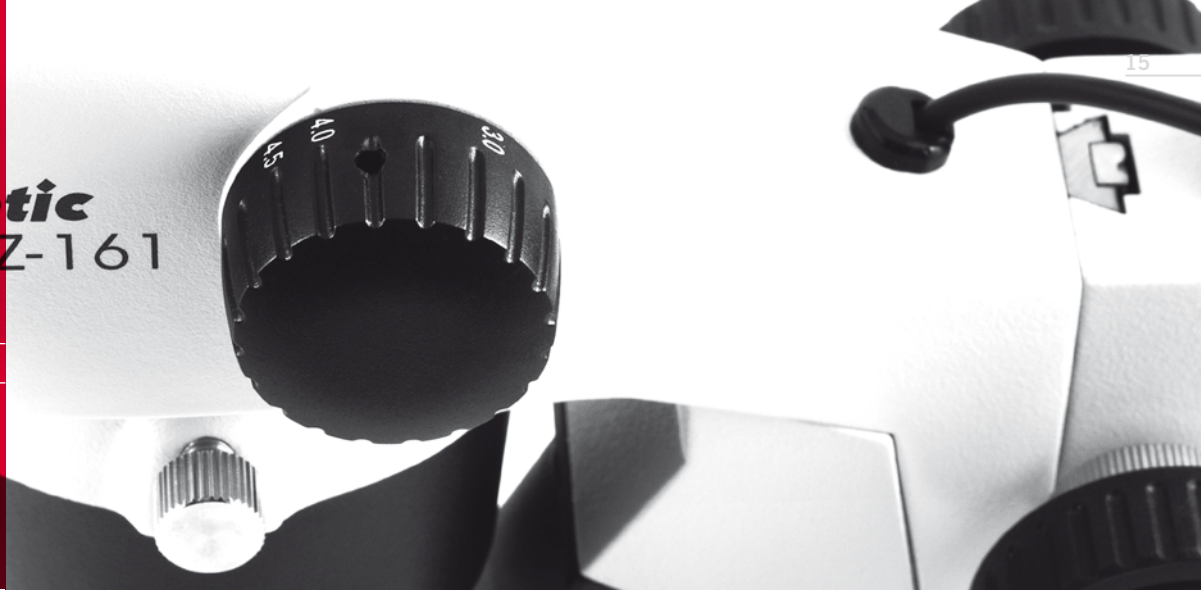


# SMZ161 SERIES

BASIC STEREO MICROSCOPE

INTRODUCTION
BA210 SERIES
BA310 SERIES
BA410E SERIES
AE2000 SERIES
AE31E SERIES
SMZ161 SERIES
SMZ171 SERIES
MOTICAM SERIES
SPECIFICATIONS

Motic
SMZ-161



# BASIC STEREO MICROSCOPE FOR TEACHING

The SMZ-161 model is a basic stereo microscope for all kind of 3-D visualization in schools and universities. Compact footprint for easy cabinet storage, student-proof features like lockable eyepieces: this instrument is ready to demonstrate three-dimensionality of various biological and medical structures to the students.

The moderate magnification power of a stereo microscope as well as the erect, upright image allows a fast access to the specimen also for unexperienced users. Easy to use, these instruments deliver crisp and distorsion-free images. Incident and transmitted light sources for opaque and transparent specimen are integral part of the basic packages: plug-in and start working.

For individual setups, auxiliary objectives and alternative eyepieces allow to extend the magnification range. For large-dimensioned samples, special stands and external illumination devices are optional.

# SMZ171 SERIES

FLEXIBLE STEREO MICROSCOPE SOLUTION

INTRODUCTION
BA210 SERIES
BA310 SERIES
BA410E SERIES
AE2000 SERIES
AE31E SERIES
SMZ161 SERIES
**SMZ171 SERIES**
MOTICAM SERIES
SPECIFICATIONS

# FLEXIBLE STEREO MICROSCOPE SOLUTION FOR RESEARCH

The SMZ-171 models are high-performance stereo microscopes in demanding applications. For research tasks in all biomedical sciences, these stereo microscopes are essential tools for daily work. Superb resolution power is paired with a stunning three-dimensionality. A bright LED illumination is the basis for a spectacular color fidelity. LED as a “cool” light source is especially recommended when it comes to heat sensible biological samples. A tilting reflector allows oblique transmitted illumination. For more illumination power, a light guide with external cold light source can be coupled into the base.

Extended working distances of the objectives give handling freedom for any manipulation of opaque and transparent specimen. Biological preparation work of animals and plants is easily done.

Special stands for treatment of large-dimensioned specimen and additional illumination options underline the system’s flexibility for difficult visualizations.

# MOTICAM SERIES

FLEXIBLE DIGITAL SOLUTIONS

INTRODUCTION
BA210 SERIES
BA310 SERIES
BA410E SERIES
AE2000 SERIES
AE31E SERIES
SMZ161 SERIES
SMZ171 SERIES
**MOTICAM** SERIES
SPECIFICATIONS

# UPGRADE YOUR MICROSCOPE AND GET A DIGITAL WORK STATION

Accurate documentation is becoming an increasingly important task in natural sciences. Any member of the Moticam series of digital cameras delivers excellent live images, ready for post-capture handling.

The Moticam series of digital c-mount cameras delivers excellent live images, ready for presentations and further storage. All Motic cameras come equipped with the new Motic Images Plus 3.0 proprietary Software for data processing and measuring purposes.

Besides the standard USB cameras, which work through a computer, we offer solutions to fit with every user need. The new Moticam Full HD cameras are ideal for the presentation of High Resolution images on an HDMI screen without computer, as they can be easily controlled with the help of a mouse.

The Wi-Fi models are dedicated to run under tablet and smartphone control through our free “MotiConnect” App, whereas the tablet cameras with touch screen in first instance work as a fixed monitor solution, but may also create a hotspot for remote tablet/smartphone access.

# SPECIFICATIONS

## BA SERIES
COMPARISON TABLE

| Model | BA210 | BA210E |
|---|---|---|
| Optical system | CCIS® | CCIS® |
| Observation system | Siedentopf 30°; 360° rotation | Siedentopf 30°; 360° rotation |
| Interpupillary distance (mm) | 55-75 | 55-75 |
| Eyepieces | N-WF 10X/20 | N-WF 10X/20 |
| Eyepieces diopter adjustment | +/- 5 dpt | +/- 5 dpt |
| Trinocular light split | 20/80 | 20/80 |
| Nosepiece | Reversed quadruple | Reversed quadruple |
| Standard objectives | EC Plan Achromat | EC Plan Achromat |
| Objective magnification range | 4X up to 100X | 4X up to 100X |
| Additional objectives | No | No |
| Positive and negative phase objectives | EC-H Plan Phase | EC-H Plan Phase |
| Plan-Apochromatic objectives | No | No |
| Objective mounting thread RMS standard (W 4/5" x 1/36") | Yes | Yes |
| Built-in coaxial mechanical stage with sample holder | Yes | Yes |
| Stage size (mm) | 140 x 135 | 150 x 150 |
| Mechanical stage X&Y range (mm) | 76 x 50 | 80 x 30 |
| Upper limit stop | Preset; adjustable | Preset; adjustable |
| Condenser | N.A. 1.25 + iris diaphragm | N.A. 1.25 + iris diaphragm |
| (Focusable Abbe type) | + slot for Phase contrast sliders | + slot for Phase contrast sliders |
| Focus mechanism | Coaxial; tension adjustment | Coaxial; tension adjustment |
| Minimum fine focus precision (µm) | 2 | 2 |
| Z-axis movement (mm) | 25 | 20 |
| Filter holder with fixing cap | Yes | Yes |
| Illumination | 3W LED; mirror | 30W Halogen; 3W LED; mirror |
| Halogen / LED interchangeability | No | Yes |
| Illumination position | Built-in | Built-in |
| Koehler | No | No |
| Multi-Viewing-Devices | No | No |
| Transformer | Built-in | Built-in |
| Power supply | 110-240V (CE) | 110-240V (CE) |
| Auto ON-OFF | No | No |
| Light manager | No | No |
| Filters included | No | Blue |
| Dimensions (mm) | 360 x 190 x 395 | 360 x 220 x 398 |
| Weight (Kg) | 7,2 | 7,2 |
| **Contrast techniques** | | |
| Brightfield | Yes | Yes |
| Phase contrast | Slider | Slider |
| Simple polarization | Yes | Yes |
| HBO Fluorescence | No | No |
| LED Fluorescence | No | Yes |

| BA310 | BA310E | BA410E | Model |
|---|---|---|---|
| CCIS® | CCIS® | CCIS® | Optical system |
| Swiveling Siedentopf 30°;360° rotation | Swiveling Siedentopf 30°;360° rotation | Siedentopf 30°; 360° rotation | Observation system |
| 48-75 | 48-75 | 50-75 | Interpupillary distance (mm) |
| N-WF 10X/20 | N-WF 10X/20 | N-WF10X/22 | Eyepieces |
| +/- 5 dpt | +/- 5 dpt | +/- 5 dpt | Eyepieces diopter adjustment |
| 20/80; optional 0/100 | 20/80; optional 0/100 | 20/80; optional 0/100 | Trinocular light split |
| Reversed quintuple | Reversed quintuple | Reversed sextuple | Nosepiece |
| EC Plan Achromat | EC Plan Achromat | EC Plan Achromat | Standard objectives |
| 4X up to 100X | 4X up to 100X | 2X up to 100X | Objective magnification range |
| No | EC Plan Achromat NCG | Plan Fluar | Additional objectives |
| EC-H Plan Phase | EC-H Plan Phase | EC-H Plan Phase | Positive and negative phase objectives |
| No | No | Plan apochromat objectives PL APO | Plan-Apochromatic objectives |
| Yes | Yes | Yes | Objective mounting thread RMS standard (W 4/5" x 1/36") |
| Yes | Yes | No; separate rackless stage | Built-in coaxial mechanical stage with sample holder |
| 175 x 140 | 180 x 170 | 180 x 170 | Stage size (mm) |
| 76 x 50 | 80 x 55 | 80 x 55 | Mechanical stage X&Y range (mm) |
| Preset; adjustable | Preset; adjustable | Preset; adjustable | Upper limit stop |
| N.A. 0.90/1.25 + iris diaphragm | N.A. 0.90/1.25 + iris diaphragm | Swing-out Abbe N.A. 0.90 | Condenser |
| + slot for Phase contrast sliders | + slot for Phase contrast sliders | with iris diaphragm | (Focusable Abbe type) |
| Coaxial; tension adjustment | Coaxial; tension adjustment | Coaxial; tension adjustment | Focus mechanism |
| 2 | 2 | 1 | Minimum fine focus precision (µm) |
| 20 | 20 | 27 | Z-axis movement (mm) |
| Yes | Yes | Yes | Filter holder with fixing cap |
| 3W LED | 30W Halogen; 3W LED | 50W Halogen / 100W Halogen | Illumination |
| No | Yes | No | Halogen / LED interchangeability |
| Built-in | Built-in | External | Illumination position |
| Yes | Yes | Yes | Koehler |
| Dual/3-head/5-head | Dual/3-head/5-head | Dual/3-head/5-head | Multi-Viewing-Devices |
| Built-in | Built-in | Built-in 50W, external 100W | Transformer |
| 110-240V (CE) | 110-240V (CE) | 110-240V (CE) | Power supply |
| No | No | Yes | Auto ON-OFF |
| No | No | Yes | Light manager |
| No | Blue | Blue | Filters included |
| 400 x 200 x 400 | 400 x 220 x 400 | 550 x 242 x 435 (50W); 592 x 242 x 435 (100W) | Dimensions (mm) |
| 8,6 | 8,6 | 14,2 | Weight (Kg) |
| | | | Contrast techniques |
| Yes | Yes | Yes | Brightfield |
| Slider & Turret | Slider & Turret | Slider & Turret | Phase contrast |
| Yes | Yes | Yes | Simple polarization |
| No | No | Yes | HBO Fluorescence |
| No | Yes | No | LED Fluorescence |

# SPECIFICATIONS

## AE SERIES
COMPARISON TABLE

| Model | AE2000 | AE31E |
|---|---|---|
| Optical system | CCIS® | CCIS® |
| Observation system | Swiveling 360° with 45° inclination | Swiveling 360° with 45° inclination |
| Interpupillary distance (mm) | 48-75 | 48-75 |
| Eyepieces | N-WF 10X/20 | N-WF 10X/22 |
| Eyepieces diopter adjustment | +/- 5 dpt | +/- 5 dpt |
| Trinocular light split | 20/80 | 20/80; 0/100 optional |
| Tilting tube | No | No |
| Nosepiece | Tilted, quadruple | Tiltet, quintuple |
| Standard objectives | New generation Plan Achromats | New generation Plan Achromats |
| Objective magnification range | 4X up to 40X | 4X up to 40X |
| Phase objectives | 4X up to 40X | 4X up to 40X |
| Universal Phase ring for objectives 10X up to 40X | Yes | Yes |
| Objective mounting thread RMS standard (W 4/5" X 1/36") | Yes | Yes |
| Stage plate with lateral extensions | Yes | Yes |
| Stage size (mm) | 200 x 239 | 200 x 239 |
| Attachable stage with inserts | Yes | Yes |
| Condenser | N.A. 0.3 + iris diaphragm + slot for Phase slider; WD 72mm | N.A. 0.3 + iris diaphragm + slot for Phase slider; WD 72mm |
| Focus mechanism | Coaxial, with tension adjustment | Coaxial, with tension adjustment |
| Minimum Fine focus precision (µm) | 2 | 2 |
| Z-axis movement (mm) of nosepiece | 8 | 10 |
| Illumination | 30W Halogen; 3W LED | 30W Halogen;100W Halogen; 3W LED |
| Halogen / LED interchangeability | Yes | Yes (30W Halogen - 3W LED) |
| Koehler | No | Yes |
| Auto ON-OFF | Yes | Yes |
| Light manager | No | Yes |
| Transformer | Internal | Internal |
| Filters included | Blue, Green | Blue, Green |
| Dimensions (mm) | 556 x 218 x 496 | 556 x 200 x 529; 629 x 200 x 595 (100W) |
| Weight (Kg) | 12,2 | 11,7 (30W); 13,2 (100W) |
| **Contrast techniques** | | |
| Brightfield | Yes | Yes |
| Phase contrast | 4X up to 40X | 4X up to 40X |
| Relief Contrast | No | No |
| HBO Fluorescence | No | Yes |

# SPECIFICATIONS

## SMZ SERIES
COMPARISON TABLE

| Model | SMZ161 | SMZ171 |
|---|---|---|
| Optical system | Greenough | Greenough |
| Observation angle | 45°; 60° optional | 45°; 60° optional |
| Interpupillary distance (mm) | 50-75 | 52-75 |
| Standard eyepieces | WF10X/20 | WF10X/23 |
| Optional eyepieces | 15X; 20X | 15X; 20X |
| Diopter adjustment | +/- 5dpt on both eyepiece tubes | +/- 5dpt on eyepieces |
| Standard magnification range | 7.5X-45X | 7.5X-50X |
| Additional objectives | 0.3X; 0.5X; 0.63X; 0.75X; 1.5X; 2X | 0.3X; 0.5X; 0.63X; 0.75X; 1.5X; 2X |
| ESD compatible objectives | Yes | Yes |
| ESD compatible stands | No | Yes |
| Zoom ratio | 1:6 | 1:6.7 |
| Working distance (mm) | 110 | 110 |
| Focus tension adjustment | Yes | Yes |
| Halogen Illumination | 10W Incident & Transmitted | No |
| LED Illumination | Yes | 3W LED Incident & Transmitted |
| Transmitted light with reflector | Yes | Yes, tiltable |
| CCD Adapters | 0.35X; 0.5X; 0.65X; 1X | 0.35X; 0.5X; 0.65X; 1X |
| SLR Adapters | Yes; 2.5X, 4X | Yes; 2.5X, 4X |
| Implementation of fiber optics (transmitted light) | No | Yes |
| Dimensions LxWxH (mm) | 237 x 170 x 397 | 303 x 239 x 405 |
| Weight (Kg) | 3,7 | 6.2 |

Motic®

Canada | USA | Europe | China

www.moticmicroscopes.com


**Motic Instruments, Inc. (Canada)**
130-4611 Viking Way, Richmond, BC V6V 2K9 Canada
Tel: 1-877-977-4717| Fax: 1-604-303 9043
info@motic-america.com

**Motic Instruments USA Inc.**
6508 Tri-County Parkway Schertz, TX 78154 USA
Tel: 1-800-275-3716

**Motic Europe (Spain)**
C. Les Corts 12, Pol. Ind. Les Corts. 08349 Cabrera de Mar, Barcelona, Spain
Tel: 34-93-756 6286 | Fax: 34-93-756 6287

**Motic Incorporation Ltd. (Hong Kong)**
Unit 2002, L20, Tower 2, Enterprise Sq. 5, 38 Wang Chiu Rd, Kowloon Bay, Kowloon
Tel: 852-2837 0888 | Fax: 852-2882 2792


Design Change: The manufacturer reserves the right to make changes in instrument design in accordance with scientific and mechanical progress, without notice and without obligation.


Motic Incorporation Limited Copyright © 2002-2019. All Rights Reserved.



Updated: October 2019