

Inverted Microscope

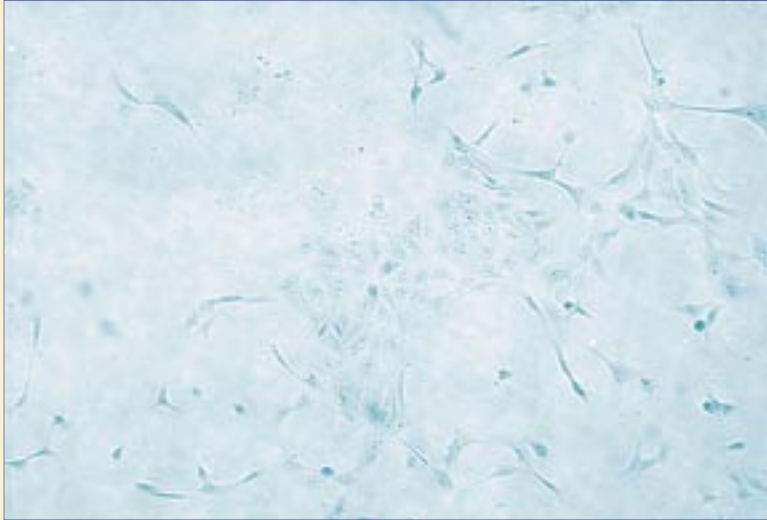


Taking the "routine" out of routine research microscopes...

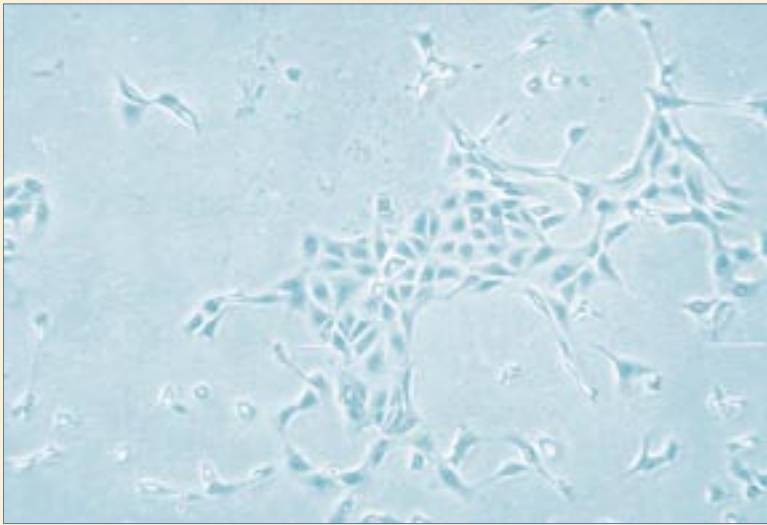
The exclusive design utilizes interchangeable sliders, thus allowing a researcher to use the same set of objectives for Brightfield, Phase Contrast and Nomarski DIC examination of living cells, cultures, sediments, precipitates and other specimens. This also eliminates the need for costly second and third sets of objectives, making this microscope both versatile and economical.

Canine Kidney Cell Culture

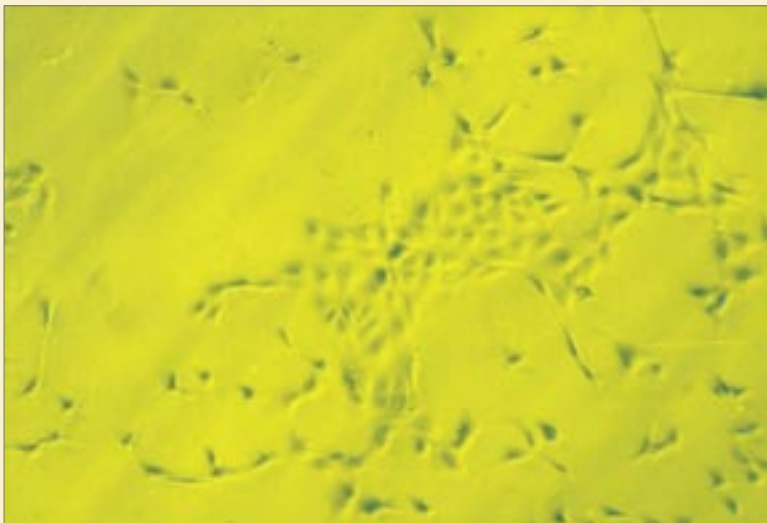
Objective: TQA-10X, N.A. 0.22



Brightfield



Phase Contrast



Nomarski DIC



WPI's Inverted Microscopes are the most durable and easy-to-use microscopes for tissue culture work and other applications requiring inverted design and long working distance optics.

This versatile and efficient microscope combines the highest optical performance with unsurpassed mechanical quality, backed by a unique lifetime warranty, the most comprehensive in the industry.



Loaded with valuable extras that would cost hundreds of dollars more from any other manufacturer – so you can start using your microscope right from the box.

Besides standard objectives, eyepieces and sliders, every Inverted Microscope always comes with:

- 1 A micrometer eyepiece with two interchangeable reticles (a 10mm/100div scale and a 10mm x 10mm/400sq grid) for convenient measuring and counting.
- 2 A set of six high-quality filters to enhance your image.
- 3 A set for Polarization (Polarizer and Analyzer).
- 4 A centering telescope to help you align the phase annulus rings.
- 5 A replacement bulb for uninterrupted operation.
- 6 A set of stage inserts and extension plates to accommodate a variety of vessels such as Petri dishes, flasks, microtest plates, etc. (shown on page 5).

Versatile, Durable, Easy to Use

Binocular Head



The **HB-45i Binocular Head**, designed with a 45° inclination for comfortable viewing, features a swiveling Seidentopf design. This allows convenient adjustment of the interpupillary distance from 55mm to 75mm without affecting the focus. The HB-45i has a single ± 5 diopter adjustment for the left eyepiece. Multilayer coating ensures high light transmission for bright, flare-free images.

Illuminator/Condenser

The **Illuminator** **1** incorporates a high-performance long-working-distance condenser with two operating positions: lower **A** (W.D. 44mm) for observation of specimens in culture vessels, microtest and microtiter plates, etc., and upper **B** (W.D.110mm) for working with high-profile flasks. The aperture iris diaphragm **2** and the slots for sliders, filters and polarizer are built in. The 12V/50W halogen lamp ensures sharp, bright images for all magnifications and contrast techniques, and perfect color temperature control for photomicrography. The heat-absorbing filter protects your delicate tissue culture specimens from heat-induced damage.



With these interchangeable sliders, the change of contrast techniques is as simple as...

...one



...two

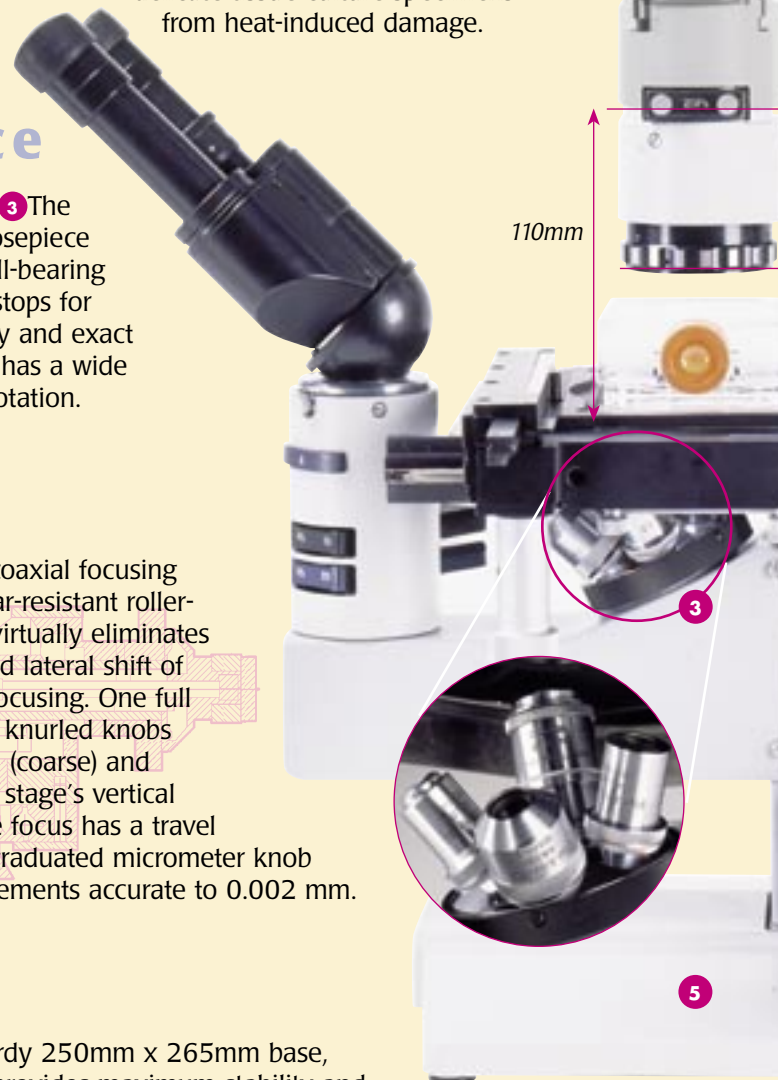


...three



Nosepiece

Revolving Nosepiece **3** The quadruple revolving nosepiece features a precision ball-bearing mechanism with click stops for parfocality, parcentricity and exact optical alignment, and has a wide knurled grip for easy rotation.



Focusing

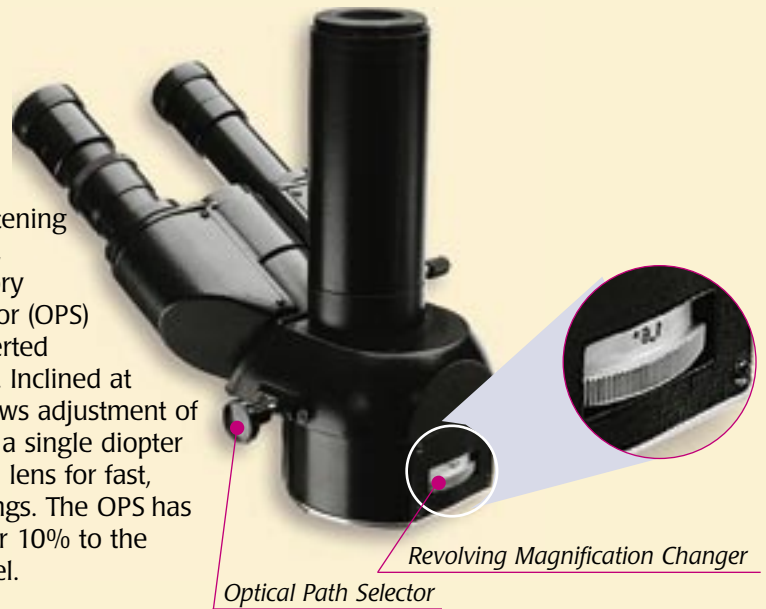
Focusing **4** Smooth coaxial focusing is achieved by the wear-resistant roller-race mechanism that virtually eliminates backlash and unwanted lateral shift of the specimen during focusing. One full revolution of the large knurled knobs corresponds to 6.5mm (coarse) and 0.250mm (fine) of the stage's vertical movement. The coarse focus has a travel range of 19mm. The graduated micrometer knob allows vertical measurements accurate to 0.002 mm.

Base

Base **5** The large, sturdy 250mm x 265mm base, with four rubber feet, provides maximum stability and insulates the microscope from vibrations – a particular advantage for photomicrography.

Trinocular Head

The **HT-30 Trinocular Head**, with its superb field-flattening ability, features a built-in Magnification Changer (1.1X, 1.6X, 2.5X)—an unsurpassed convenience for laboratory observation. Moreover, the built-in Optical Path Selector (OPS) and the three interchangeable adapters make the Inverted Microscope a true high-performance photomicroscope. Inclined at 30°, this head features the Seidentopf design that allows adjustment of the interpupillary distance from 55mm to 75mm, has a single diopter adjustment of ±5 dpt and is equipped with a Bertrand lens for fast, convenient centering of the phase contrast annulus rings. The OPS has two positions: either 100% of light to the binocular, or 10% to the binocular and 90% to the vertical photo/video channel.



Revolving Magnification Changer

Optical Path Selector

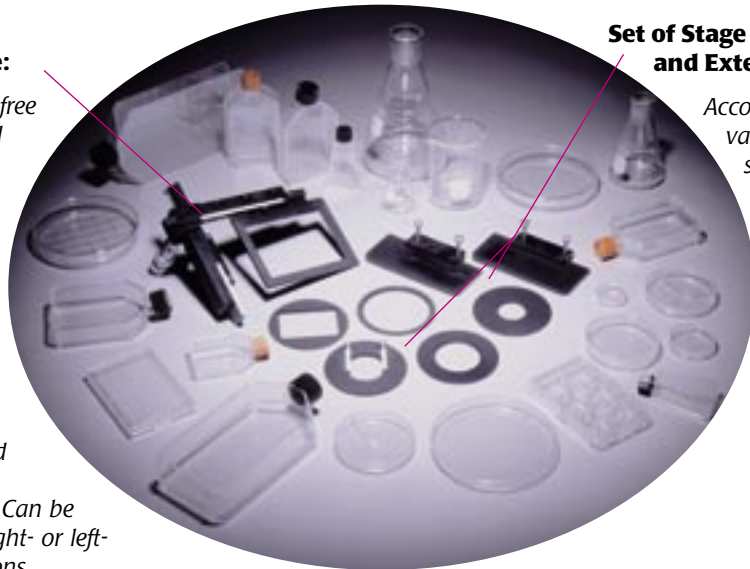
To better match the diversity of your applications, every WPI Inverted Microscope always includes the following specimen-manipulating accessories as standard equipment:

Attachable Mechanical Stage:

Convenient, fatigue-free operation is assured by low-position X and Y controls with knurled knobs. The precise, wear-resistant mechanism allows smooth specimen cross-travel (120mm x 70mm) measured against two 1mm-graduated scales with verniers accurate to 0.1mm. Can be installed at either right- or left-hand control positions.

Set of Stage Inserts and Extension Plates

Accommodates a variety of vessels, such as Petri dishes, flasks, bottles, microtest and microtiter plates, etc.



The mechanical stage covers a large scanning area (120mm x 70mm) and incorporates a 96-well microtest plate holder.

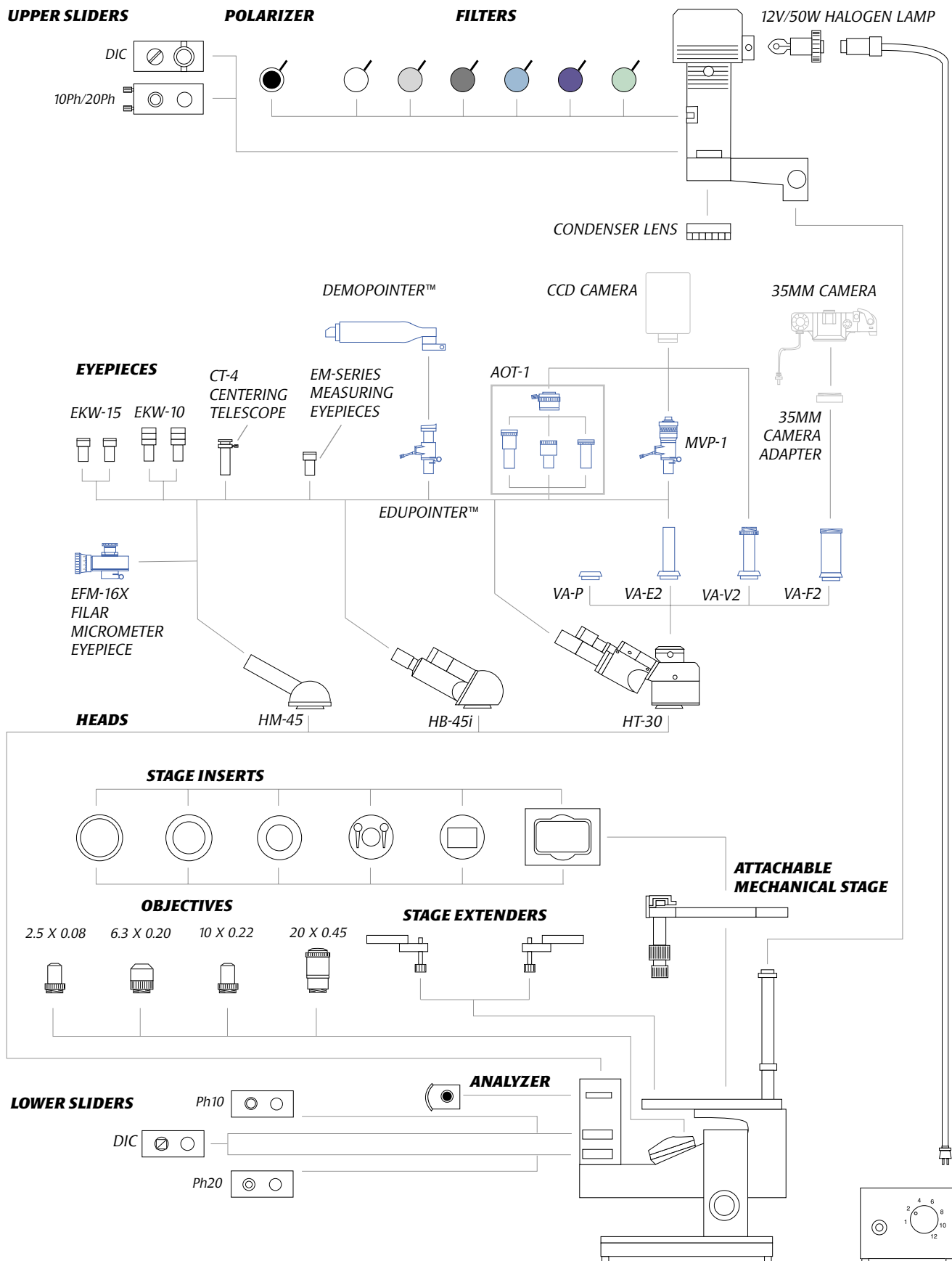


The plain stage is 170mm x 180mm and can be extended to 300mm x 180mm to accommodate extra-long flasks and bottles.



44mm

WPI Inverted Microscope System Diagram



Features and Specifications

Optical System: 160mm Mechanical Tube Length, 45mm Parfocal Distance, 175x-500x Magnification for Observation		
Head	Binocular	45° inclined. 360° rotatable. Magnification factor: 1X. IPD adjustment range: 55mm–75mm. DA for the left eyepiece: ±5 dpt.
	Trinocular	30° inclined. 360° rotatable. Magnification changer (1.1X, 1.6X, 2.5X). IPD adjustment range: 55mm–75mm. DA for the left eyepiece: ±5dpt. Built-in optical path selector and a Bertrand lens.
Stand	Frame	Compact, lightweight, stable aluminum-alloy frame with low-position focusing controls.
	Head Mount	Accepts heads and photo-attachments.
	Base	Sturdy and stable with four rubber feet. Chemical- and scratch-resistant. Dimensions: 245mm x 265mm.
Focusing	Coarse	Two large knurled knobs. Travel range: 19mm with 6.5mm of stage's vertical travel per full knob revolution.
	Fine	Coaxial. 0.250mm of stage's vertical travel per full knob revolution.
Nosepiece	Quadruple	Built-in precision click stops for parfocality and parcentricity of the objectives. Dustproof. Chrome-plated. Wide knurled grip.
Stage	Attachable	High-precision mechanical stage. Low coaxial X/Y controls. Size: 170mm x 180mm. Specimen cross-travel: 70mm x 120mm. Scale graduation: 1mm. Vernier Accuracy: 0.1mm. Accepts a range of inserts and extension plates for a variety of vessels.
Condenser	Lower Position	44mm Working Distance, N.A. 0.35.
	Upper Position	110mm Working Distance, N.A. 0.10.
Objectives	TQA-Series Plan Attachments	Four long-working-distance objectives corrected for vessel bottom thickness of up to 2.5mm.
Eyepieces	EKW-10X (2pc)	10X, F.N. 18, Widefield.
	EM-15X (1pc)	15X, F.N. 11, micrometer eyepiece with two interchangeable reticles (a 10mm/100div scale and a 10mm x 10mm/400sq grid).
Illumination	12V/50W Halogen	Continuous light intensity regulation. Heat-absorbing filter. Illuminator housing accepts Phase Contrast and Nomarski DIC sliders, a range of included filters and a polarizer. Built-in aperture diaphragm.
Filters	Set of six	Ø33mm.
Miscellaneous		Instruction manual, dust cover, spare bulb, centering telescope.

Specifications of Optical Components

Inverted Microscope Objectives (Mechanical Tube Length: 160mm; Parfocal Distance: 45mm; Glass Thickness: 0-2.5mm)							
Type	Magnification	Numerical Aperture	Working Distance (mm)	Contrast Technique			
				BF	PH	POL	DIC
TQA-Series Plan-Achromats	2.5 X	0.08	20.0	■		■	
	6.3 X	0.20	19.0	■		■	
	10 X	0.22	15.0	■	■	■	■
	20 X	0.45	3.0	■	■	■	■

Dimensions

Inverted Microscope Eyepieces				
Type	Magnification	Field Number	Focal Length (mm)	Application
EKW-7X, Compensating, Widefield	7 X	18	36.0	Observation
EKW-10X, Compensating, Widefield	10 X	18	25.0	
EKW-15X, Compensating, Widefield	15 X	11	16.7	
EM-7X¹	7 X	18	36.0	Measurement
EM-10X¹	10 X	14	25.0	
EM-15X¹	15 X	11	16.7	
EF-7X², Compensating	7 X	18	36.0	Photomicrography
EF-10X², Compensating	10 X	13	25.2	
EDUPOINTER^{TM3}	10 X	18	36.0	

¹ With crossline and scale (10mm/100div)
Other reticles available

² With picture frame

³ With movable & retractable pointer

Weight (Microscope only):

Power Consumption:

Approx. 12kg/27 lb

Max. 55 VA

