

**OLYMPUS**<sup>®</sup>

Your Vision, Our Future

System Microscope

**BX43/BX46/BX53**

BX3 Series

**NEW**

Comfort and Performance  
in Efficient Harmony



**UIS2**  
World-leading optics



## A Revolutionary New Standard in Operating Comfort and Imaging Efficiency

The Olympus BX43/BX46/BX53 series defines a revolutionary new standard in laboratory and clinical microscopy. Ergonomic design can provide enhanced operator comfort during long hours of use, with an intuitive control layout for fast, efficient observation and imaging.

Comfort & Efficiency



**BX46**  
Clinical Microscope



**BX43**  
System Microscope



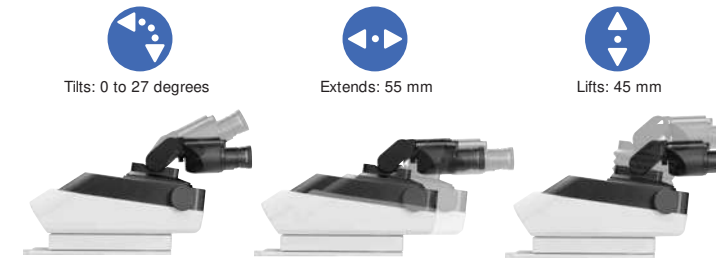
**BX53**  
System Microscope



## Comfortable Posture for the Operator

### Binocular Tube Lifts to Meet You Halfway

The U-TTLBI binocular tube lifts, extends and tilts with simple adjustments for optimum posture. This new design allows long hours of observation to be more comfortable, regardless of physique.



### Tilting Binocular tube Lineup Caters To Your Individual Needs

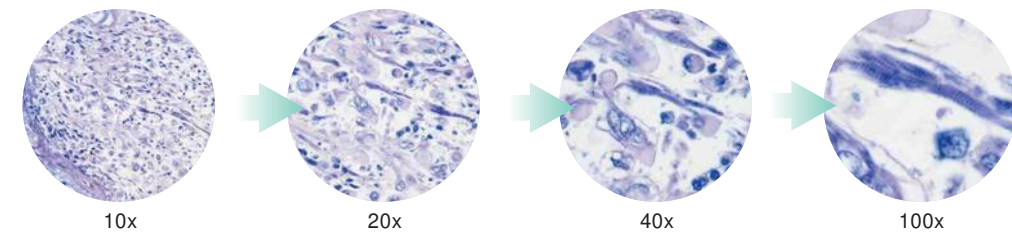
A diverse lineup of tilting tubes is now available to meet various demands, including cost performance with U-TBI-3 and erect image observation with U-ETBI. Eyepoint adjusters/U-EPA2 and U-EPAL-2 accommodate height differences, resulting in a height-appropriate eye-point fit.



## Diminishes Eye Fatigue and Repetitive Movements

### Light Intensity Manager Controls Brightness

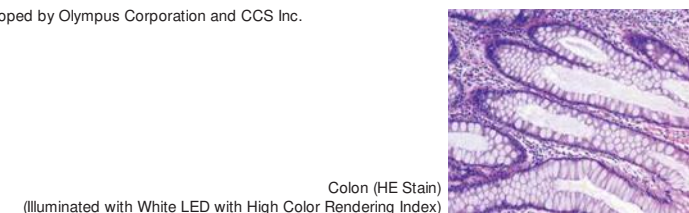
The BX43/BX46 assigns objectives their own brightness, freeing the operator from light intensity adjustments with changes in magnification. Uniform brightness is maintained with objective changeovers, eliminating light intensity control and reducing eye fatigue. Brightness can also be set to suit operator preferences.



### Olympus LED\*, Optimal Lighting for Pathology and Cytology

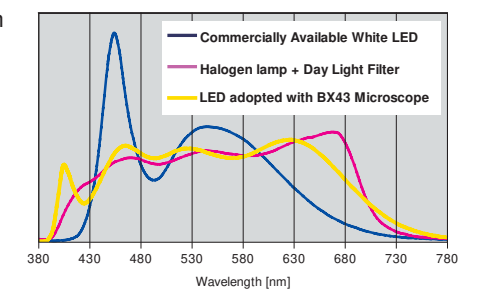
The BX43/BX46 offers a solution for detecting purples, cyans, and reds that are often difficult to view with white LEDs. Olympus white LED with high color rendering index has wavelength characteristics close to those of halogen, realizing halogen lamp-equivalent color reproductions. LED lighting retains color temperature even preventing images from turning reddish or bluish in color.

\*LED was jointly developed by Olympus Corporation and CCS Inc.



Colon (HE Stain)  
(Illuminated with White LED with High Color Rendering Index)

Spectral Characteristics\*



\* This graph shows the spectral characteristics of each light source regularized with the luminosity curve. It does not compare the strength of light for each light source.



## Accessible Comfort in Conference and Imaging

### Tilting Trinocular Tube for Optimal Posture

A camera can be attached to the tilting trinocular tube/U-TTR-2 which accommodates operator physique and posture. The optical path switch can be attached to either side of the tube.



### Hand Switch for Image Capture

The U-HSEXP hand switch for exposure attaches easily on the microscope, and allows the operator to capture an image without having to take his/her eyes away from the specimen. The exposure switch is located close to the focus handle creating minimal movement during operation.

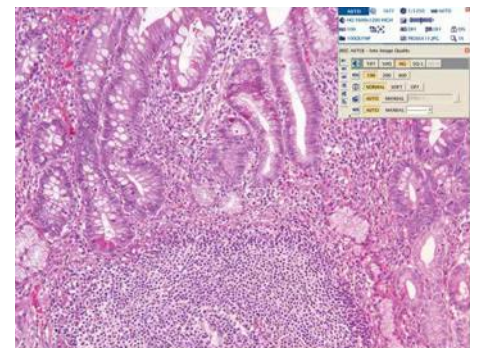


### DP21 Digital Camera Takes Comfort Further

The Olympus DP21, a stand-alone digital camera that is also computer-friendly, provides accurate color reproductions and smooth, high-definition live image displays that are ideal for conference use. The convenient handset ensures simple operation during image acquisition and measurement.



BX53+Digital Camera DP21 (Stand-alone) Configuration



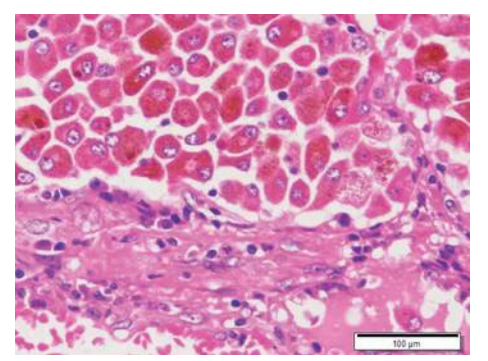
Stomach (HE Stain)

### Capturing Images Made Easy

The Olympus digital camera, using the cellSens imaging software platform, facilitates image capture. cellSens is simple to operate, allowing the operator to customize his/her workflow.



BX53+Digital Camera DP72 Configuration



Melanoma of Lung (HE Stain)

### Accurate Post-imaging Measurements

Integration with coded revolving nosepiece allows sharing and recording of objective magnification. The coded revolving nosepiece eliminates errors that occur when the wrong magnification is manually recorded by the operator.

# BX43

Comfort and Efficiency in Operation

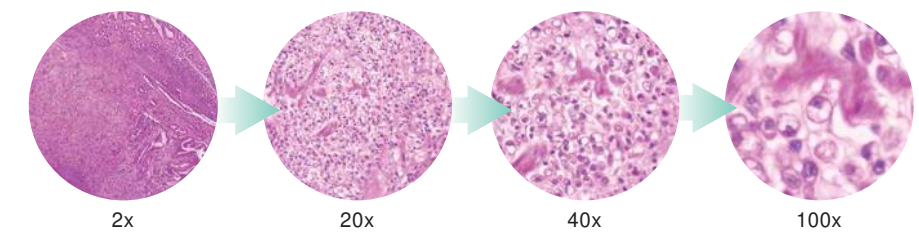
## Light Intensity Manager Controls Brightness

This feature functions with the BX43-5RES, a coded 5-position nosepiece for BX43, eliminating light intensity adjustments when switching magnifications. The long-life LED ensures uniform brightness with easy maintenance.



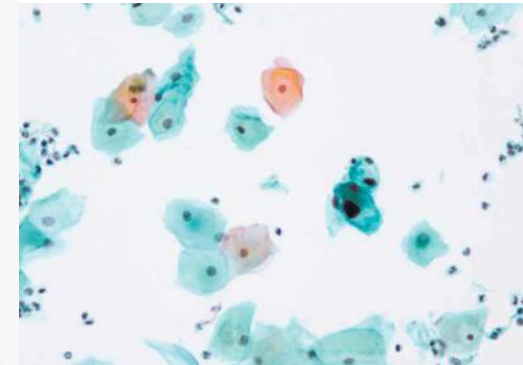
## Low Magnification Condenser U-LC

Changing objective magnification from 2x to 100x (dry) is now possible without having to change the condenser or move the top lens.

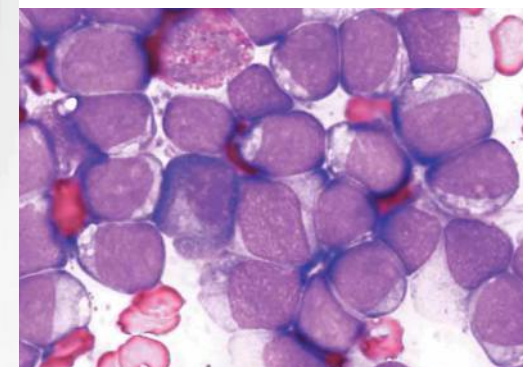


## Various Units to Accommodate Observation Style

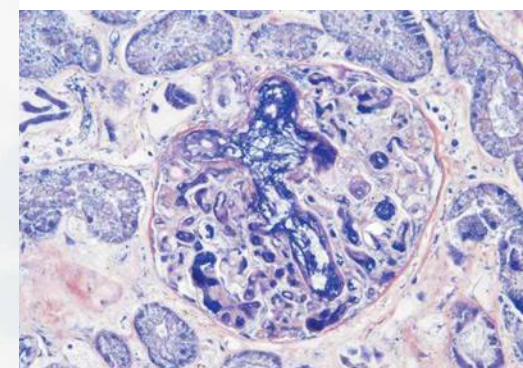
A diverse lineup of module units including ergonomic observation tubes and stages are available to suit individual applications.



Cervical Cytology (Papanicolaou Stain)



Hematology (AML, Giemsa Stain)



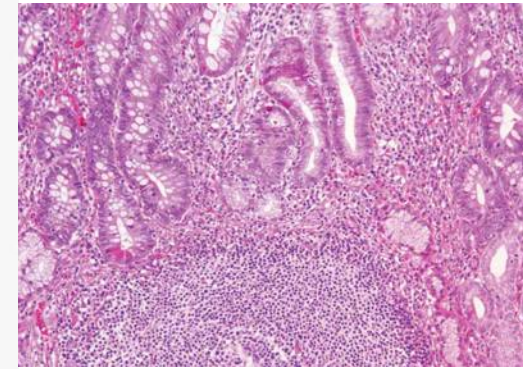
Kidney (Fibrin, PTAH Stain)



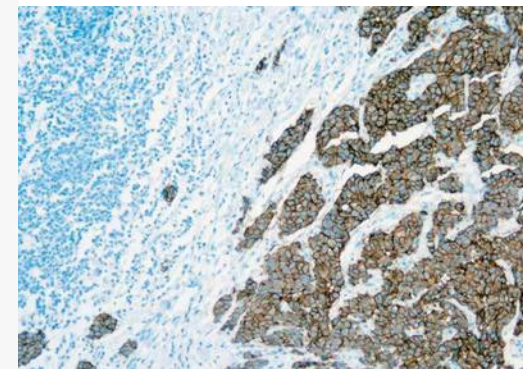
BX43

# BX46

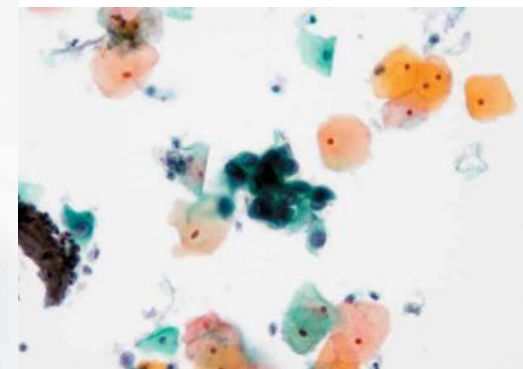
Improved User Comfort and Efficient Operation



Stomach (HE Stain)



Breast (Anti HER2)



Cervical Cytology (Papanicolaou Stain)

## Ergonomic Tube Provides Comfort in Posture

The binocular tube/U-TTLBI tilts, extends and lifts to accommodate operator physique and posture. This feature enhances comfort during long hours of observation.



## Revolving Nosepiece with Light Intensity Manager Functionality

The light intensity manager sets brightness settings according to the specific objective. Uniform brightness is achieved from low to high magnifications, eliminating light intensity adjustments, therefore reducing eye fatigue. The long-life LED ensures uniform brightness with easy maintenance.

## Light Action, Low Torque Stage — Reduced Operator Force to Move the Specimen

Quick yet thorough screenings with simple finger taps alleviate operator fatigue. Low-position handles require only minimal movements, with the lower arm resting comfortably on the desk.



## Low, Fixed Stage for Ease in Changing Specimens

Working comfort increases with our low-position fixed stage and nosepiece focus to suit the individual user. Specimen is easily set with minimum hand operations and visibility is improved to reduce operator fatigue.

BX46

# BX53

Advanced Modularity to Suit Observation Style

## Ideal Scalability Answers Various Demands

In addition to integrations with modular components for brightfield observation, various other modular units such as fluorescence, phase contrast, polarization and darkfield are available to enhance scalability. The 100 W halogen-transmitted light source can meet various imaging and multi observation modes.

## Further Comfort in Fluorescence Observation

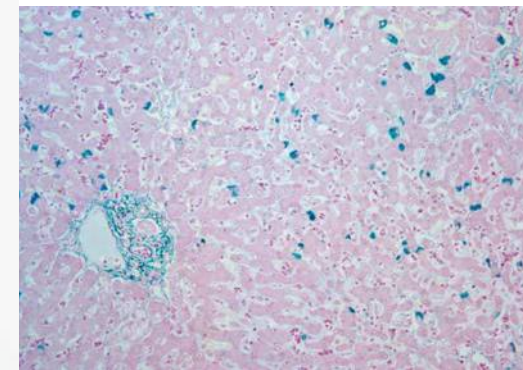
Olympus introduces special high performance filters for all fluorescence mirror units. The fluorescence illuminators can carry eight mirror units simultaneously to seamlessly image multi-stained specimens. Furthermore, no tools are required for mirror unit replacements.

## Customizable Control Layout

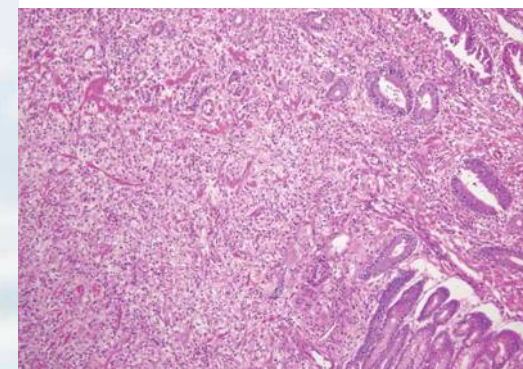
The BX53 is designed for maximum flexibility in placement, with a centrally positioned light intensity dial and a fluorescence illuminator shutter that can be operated with either hand. In addition, the fine focus handles can be attached on either the right or left side of the microscope according to operator preference.

## Energy-saving Switch Turns off Automatically

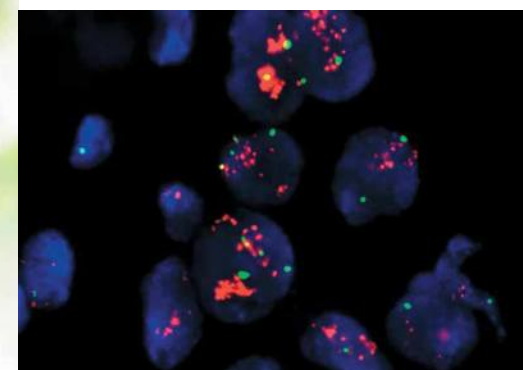
The motion sensor detects when an operator leaves and automatically turns off the transmitted light lamp after around 30 minutes. The energy-saving switch conserves energy and lamp lifetime.



Liver (HBV, Victoria Blue Stain)



Stomach (HE Stain)



Breast (HER2, FISH)



BX53

# A Microscope Designed to Meet Your Specifications and Needs

The Olympus infinity-corrected optical system UIS2 satisfies future scalability needs. Inserting an optical element into the infinity space causes no image distortion or deterioration in image quality.



## ● UPLSAPO Series

Thanks to the application of the Olympus original UW multi-coatings, these Super Apochromat objectives compensate for both spherical and chromatic aberrations from the UV to the near infrared region. Their sensitivity to fluorescence emissions ensures the acquisition of sharp, clear images, without color shift, even in brightfield observation. For quality and performance, they offer solutions for digital imaging needs.



## ● PLAPON Series

Designed for unsurpassed resolution and contrast, these Plan Apochromat objectives reduce chromatic aberration to an absolute minimum. 1.25x and 2x objectives are available.



## ● UPLFLN (UPLFLN-PH) Series

These plan objectives also provide flat images with high transmission up to the near infrared region of the spectrum. With their high signal to noise ratio, excellent resolution and high contrast imaging, they are especially effective in brightfield observation. The UPLFLN-PH series is optimized for phase contrast observation.



## ● PLN (PLN-PH) Series

Ideal for a range of clinical and research applications, these high quality objectives feature excellent flatness up to F.N. 22 in transmitted brightfield (phase contrast) observation. The PLN-PH series is specifically designed for phase contrast observation.



## ● No Cover Objectives

The Olympus coverglass-free objectives are designed for glass slides without a cover slip. This feature is largely designed for observation of blood smear specimens.

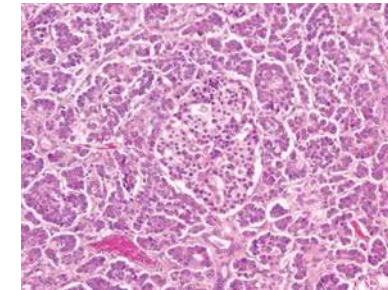


## Brightfield

### Brighter Images, with Superb Resolution/Flatness at All Magnifications

Olympus offers a diverse line of condensers including: the U-SC3 swing-out condenser, suitable for observations from 1.25x to 100x; the U-LC, for consecutive observations from 2x to 100x (dry); the U-AAC, whose Aplanat-Achromat design reduces chromatic aberration; and the U-ULC-2 special condenser for ultra low magnifications.

\*Select the U-ULC2 condenser for optimal digital imaging with the 1.25x objective.



Pancreas (HE)

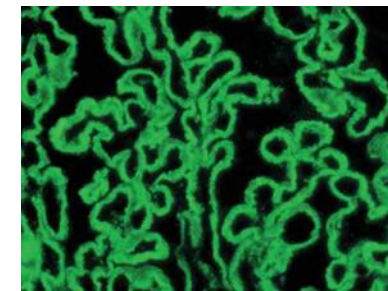


①U-SC3 ②U-ULC-2 ③U-AC2 ④U-AAC ⑤U-LC

## Fluorescence

### Olympus Takes Fluorescence Observation to Another Plane

Two types of reflected illuminators are available, the universal reflected illuminator/BX3-URA and the coded fluorescence illuminator/BX3-RFAS. A total of eight fluorescence mirror units can be attached for comfortable multi-color fluorescence observations. High-performance filters provide efficient, bright and even fluorescence observations.



Kidney (Anti IgG)

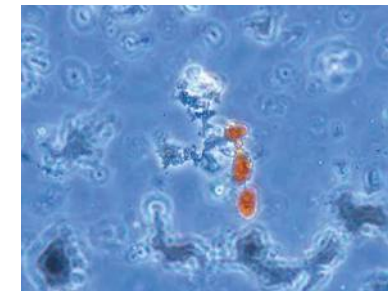


BX3-URA BX3-RFAS

## Phase Contrast

### High-contrast, High-resolution Imaging

High contrast phase imaging allows close observation of the cell interior and of live bacteria. Using UPLFLN-PH or PLN-PH series objectives, phase contrast observation from 10x up to 100x is available. With the U-PCD2 phase/darkfield condenser, users can view specimens in brightfield or darkfield. Simultaneous observation with reflected light fluorescence microscopy is also possible.



Asbestos

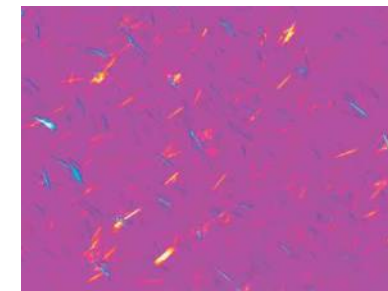


U-PCD2

## Polarized Light

### High-resolution View of Double Refraction Structure in Cells

Tooth, bone, muscle tissue, nerve tissue, actomyosin fiber and mitotic spindle can all be observed, without staining. There are intermediate attachments (U-OPA/U-CPA) for orthoscopic and orthoscopic/conoscopic viewing. Various compensators make it possible to observe a wide range of retardation. Also available is a condenser exclusively for polarization observation, revolving nosepiece, rotating stage, objectives, simple polarizing attachment and analyzer to detect uric acid crystal.



Urate Crystals



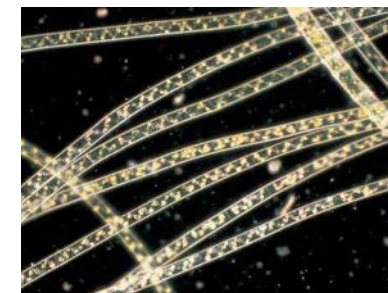
①U-POC-2 ②U-CPA ③U-OPA ④U-AN360P-2 ⑤U-P4RE ⑥U-GAN ⑦BX45-PO

## Darkfield

### Excellent Darkfield Effect from Low to High Magnifications

Choose from the 10x to 100x dry darkfield condenser/U-DCD or the 20x to 100x oil immersion darkfield condenser/U-DCW.

\*Please consult your nearest Olympus representative for applicable objectives.



Spirogyra

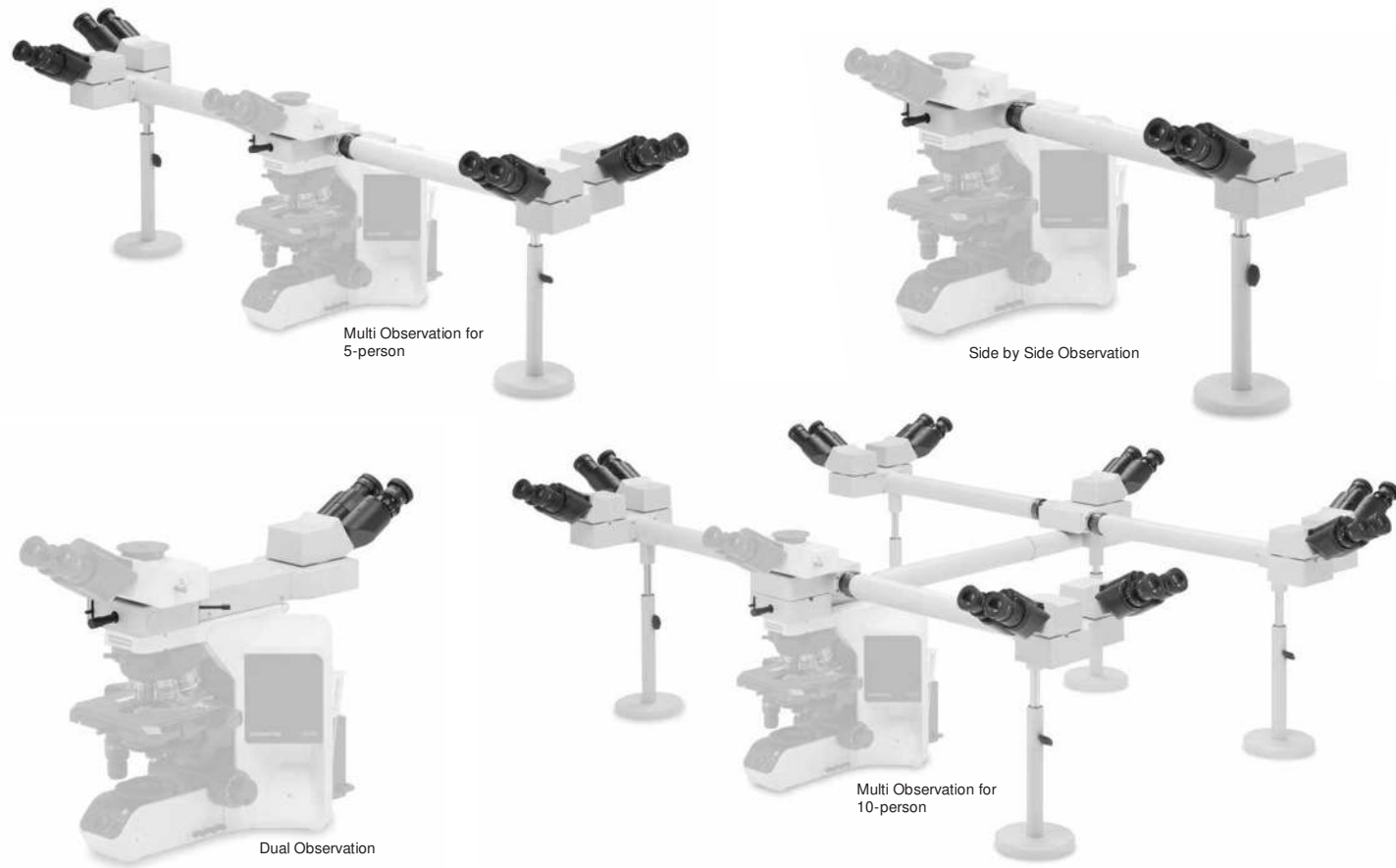


U-DCD U-DCW



# Group Observation Systems

Olympus discussion systems are invaluable for lab training and education. There is a wide choice, designed for 2 to 10 participants. The pointer is powered by LED, so there is no concern for sudden lamp failure.



- Lead-and-arsenic-free Eco-glass for optics, such as lenses and prisms
- Exclusion of hexavalent chrome from metal materials and surface metal treatments
- Exclusion of lead from electric components and solders
- Exclusion of chlorofluorocarbons in production
- Compliance with laws and regulations : RoHS (EU), Chinese RoHS (China), WEEE (EU)

- Adoption of cardboard packaging

## Development/ Production



## Enhanced Performance Even for the Environment

Olympus Group will develop products, services and production technologies with a careful and conscientious regard for safety and environmental protection, so that the society and environment we pass on will be sound and full of health.

BX43/BX46/BX53 are Olympus-certified Eco-Products, manufactured under Olympus' own green designing standards, established in reference to Type II environmental label indication stipulations in the international standard ISO 14021.

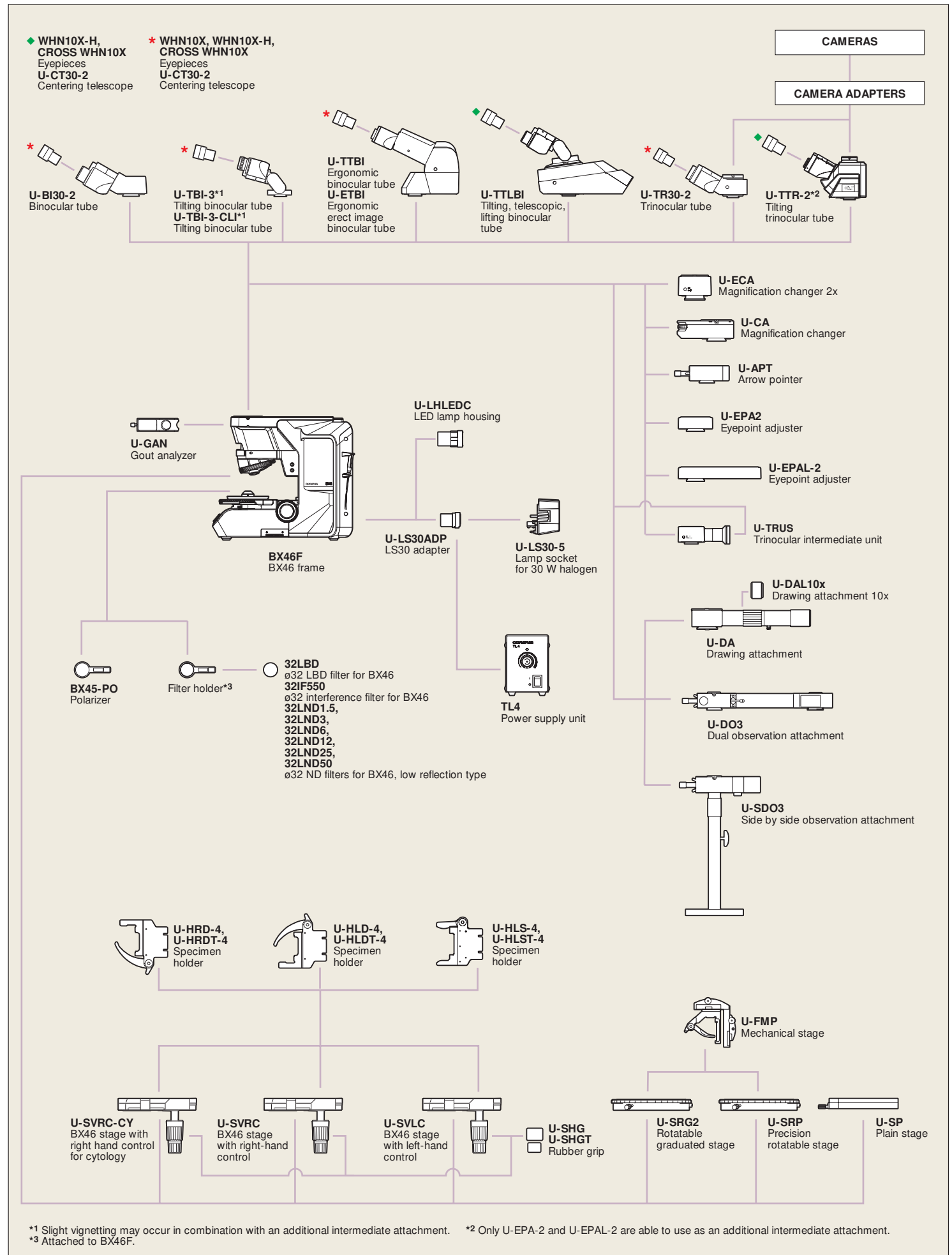
## Use

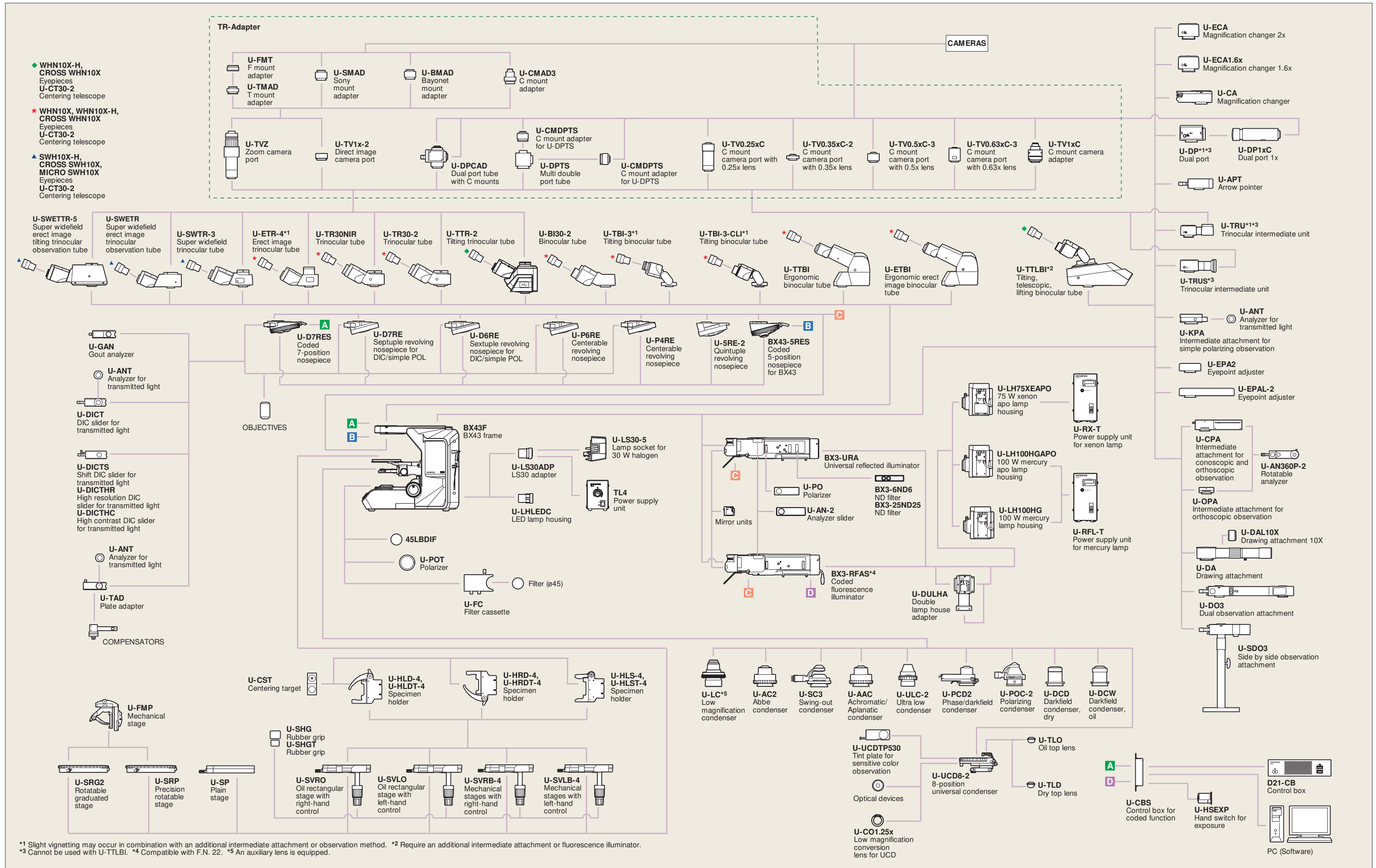
## Waste Disposal

- Waste sorting
- Improved recycling rate

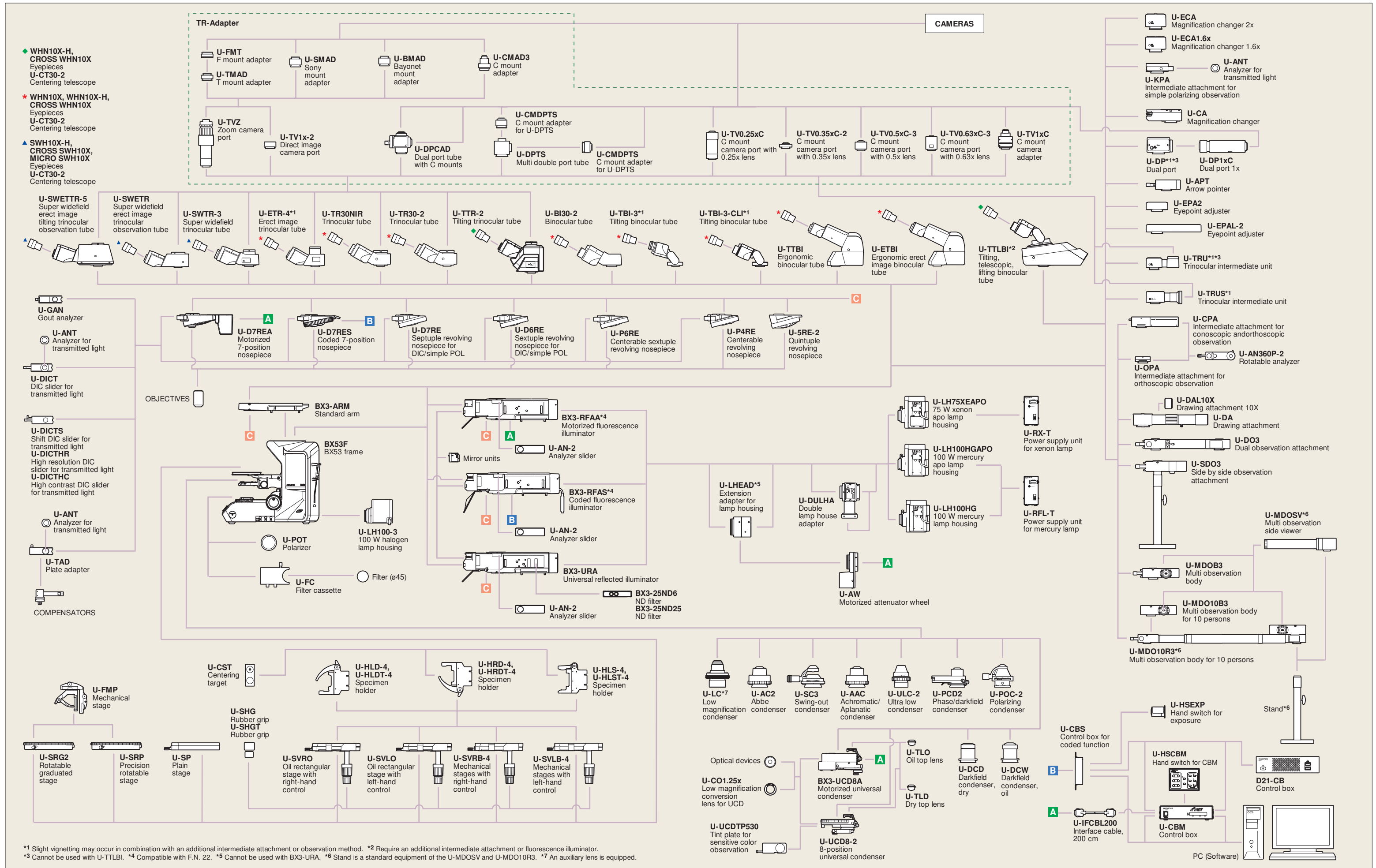
- LED Illumination White LED as light source, BX43 and BX46 reduce power consumption by 10%
- ECO (energy-saving) modes The BX53 sensor turns off the transmitted light lamp after around 30 minutes.

# BX46 system diagram





\*1 Slight vignetting may occur in combination with an additional intermediate attachment or observation method. \*2 Require an additional intermediate attachment or fluorescence illuminator.  
\*3 Cannot be used with U-TTLBI. \*4 Compatible with F.N. 22. \*5 An auxiliary lens is equipped.



\*1 Slight vignetting may occur in combination with an additional intermediate attachment or observation method. \*2 Require an additional intermediate attachment or fluorescence illuminator. \*3 Cannot be used with U-TTLBI. \*4 Compatible with F.N. 22. \*5 Cannot be used with BX3-URA. \*6 Stand is a standard equipment of the U-MDOSV and U-MDO10R3. \*7 An auxiliary lens is equipped.

### BX43 specifications

Microscope frame	Optical system	UIS2 optical system
	Focus	Vertical stage movement: 25 mm stage stroke with coarse adjustment limit stopper, Torque adjustment for coarse adjustment knobs, Stage mounting position variable, High sensitivity fine focusing knob (minimum adjustment gradations: 1 μm)
	Illuminator	Built-in Koehler illumination for transmitted light, light intensity manager switch High color reproductivity LED light source, 6 V 30 W halogen bulb (pre-centered)
Revolving nosepiece		Interchangeable reversed quintuple/coded quintuple/sextuple/septuple/coded septuple nosepiece
Observation tube	Widefield (F.N. 22)	<ul style="list-style-type: none"> <li>Widefield tilting, telescopic and lifting binocular</li> <li>Widefield tilting trinocular • Widefield trinocular • Widefield erect image trinocular</li> <li>Widefield tilting binocular • Widefield ergo binocular • Widefield binocular</li> </ul>
	Super widefield (F.N. 26.5)	<ul style="list-style-type: none"> <li>Super widefield trinocular • Super widefield erect image trinocular</li> </ul>
Stage		Ceramic-coated coaxial stage with left or right hand low drive control: with rotating mechanism and torque adjustment mechanism, optional rubber grips available (Non stick grooved coaxial, plain, rotatable stages are also available)
Condenser		<ul style="list-style-type: none"> <li>Abbe (N.A. 1.1), for 4x–100x</li> <li>Swing out Achromatic (N.A. 0.9), for 1.25x–100x (swing-out: 1.25x–4x)</li> <li>Achromatic Aplanatic (N.A. 1.4), for 10x–100x</li> <li>Phase contrast, darkfield (N.A. 1.1), [phase contrast: for 10x–100x, darkfield: for 10x–100x (up to N.A. 0.80)]</li> <li>Universal (N.A. 0.9), for 1.25x–100x [swing-out: 1.25x–4x, with oil top lens:(N.A. 1.4)]</li> <li>Low (N.A. 0.75), for 2x–100x (Dry)</li> <li>Ultra low (N.A. 0.16), for 1.25x–4x</li> <li>Darkfield dry (N.A. 0.8–0.92), for 10x–100x</li> <li>Darkfield oil (N.A. 1.20–1.40), for 10x–100x</li> </ul>

### BX46 specifications

Microscope frame	Optical system	UIS2 optical system
	Focus	Fixed low stage nosepiece focus 15 mm focus stroke with coarse adjustment limit stop Torque adjustment for coarse adjustment knobs High sensitivity fine focusing knob (adjustment gradations: 1 μm)
	Illuminator	Built-in Koehler illumination for transmitted light, light intensity manager switch High color reproductivity LED light source
Revolving nosepiece		Fixed reversed coded quintuple nosepiece
Observation tube	Widefield (F.N. 22)	<ul style="list-style-type: none"> <li>Widefield tilting trinocular • Widefield trinocular</li> <li>Widefield tilting binocular • Widefield tilting, Telescopic, Lifting binocular • Widefield ergo binocular • Widefield binocular</li> </ul>
	Super widefield (F.N. 26.5)	<ul style="list-style-type: none"> <li>Super widefield trinocular • Super widefield erect image trinocular</li> </ul>
Stage		Ceramic-coated coaxial stage with left or right hand low drive control, rotating mechanism and torque adjustment mechanism (Low torque, Plain, Rotating stages are also available)
Condenser		Built-in condenser (N.A. 0.9) 1.25x–100x (swing out: 1.25x–2x)

### BX53 specifications

Microscope frame	Optical system	UIS2 optical system
	Focus	Vertical stage movement: 25 mm stage stroke with coarse adjustment limit stopper, Torque adjustment for coarse adjustment knobs, Stage mounting position variable, High sensitivity fine focusing knob (minimum adjustment gradations: 1 μm)
	Illuminator	Built-in Koehler illumination for transmitted light, Light preset switch, Light intensity LED indicator, Built-in filters (LBD-IF, ND6, ND25, optional) 12 V 100 W halogen bulb (pre-centered)
Revolving nosepiece		Interchangeable reversed quintuple/coded quintuple/sextuple/septuple/coded septuple nosepiece
Observation tube	Widefield (F.N. 22)	<ul style="list-style-type: none"> <li>Widefield tilting trinocular • Widefield trinocular</li> <li>Widefield tilting binocular • Widefield tilting, Telescopic, Lifting binocular • Widefield ergo binocular • Widefield binocular</li> </ul>
	Super widefield (F.N. 26.5)	<ul style="list-style-type: none"> <li>Super widefield trinocular • Super widefield erect image trinocular</li> </ul>
Stage		Ceramic-coated coaxial stage with left or right hand low drive control: with rotating mechanism and torque adjustment mechanism, optional rubber grips available (Non stick grooved coaxial, plain, rotatable stages are also available)
Condenser		<ul style="list-style-type: none"> <li>Abbe (N.A. 1.1), for 4x–100x</li> <li>Swing out Achromatic (N.A. 0.9), for 1.25x–100x (swing-out: 1.25x–4x)</li> <li>Achromatic Aplanatic (N.A. 1.4), for 10x–100x</li> <li>Phase contrast, darkfield (N.A. 1.1), [phase contrast: for 10x–100x, darkfield: for 10x–100x (up to N.A. 0.80)]</li> <li>Universal (N.A. 0.9), for 1.25x–100x [swing-out: 1.25x–4x, with oil top lens:(N.A. 1.4)]</li> <li>Low (N.A. 0.75), for 2x–100x (Dry)</li> <li>Ultra low (N.A. 0.16), for 1.25x–4x</li> <li>Darkfield dry (N.A. 0.8–0.92), for 10x–100x</li> <li>Darkfield oil (N.A. 1.20–1.40), for 10x–100x</li> </ul>
Fluorescence illuminator		<ul style="list-style-type: none"> <li>Multi-purpose coded type (F.N. 22, 8-position mirror unit turret, 4-position ND slider)</li> <li>Economical type (F.N. 26.5, 8-position mirror unit turret)</li> </ul>
Fluorescence light source		100 W Hg apo lamp housing and transformer, 100 W Hg lamp housing and transformer or 75 W Xe lamp housing and transformer

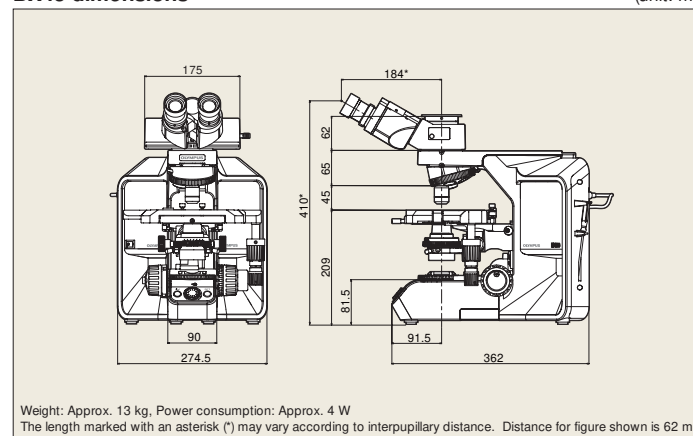
The U-CBM is designed for the BX3 use in industrial environments for the EMC performance (IEC61326-1 Class A device). Using it in a residential environment may affect other equipment in the environment.

### BX43/BX46/BX53 common specifications

Operating environment	<ul style="list-style-type: none"> <li>Indoor use</li> <li>Ambient temperature : 5 ° to 40 °C (41 ° to 104 °F)</li> <li>Maximum relative humidity : 80 % for temperatures up to 31° C (88 °F), decreasing linearly through 70 % at 34 °C (93 °F), 60 % at 37 °C (99 °F), to 50 % relative humidity at 40 °C (104 °F)</li> <li>Supply voltage fluctuations : Not to exceed ±10 % of the normal voltage</li> </ul>
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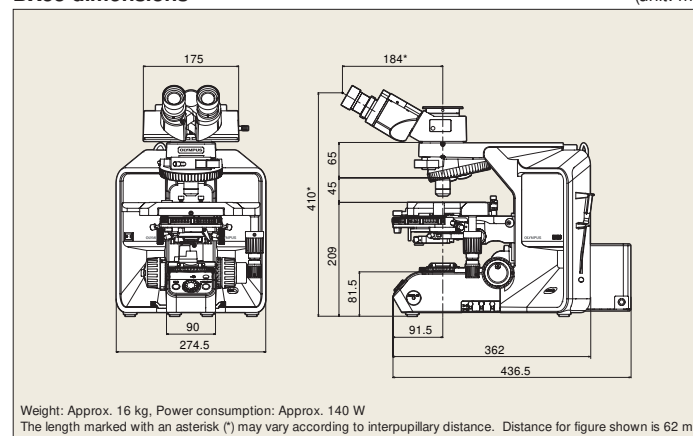
### BX43 dimensions

(unit: mm)



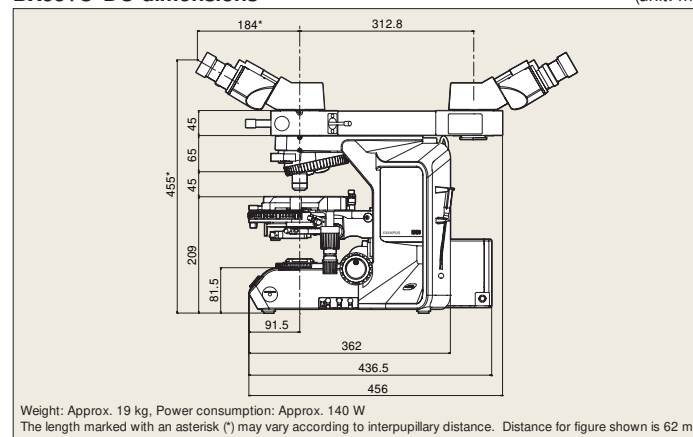
### BX53 dimensions

(unit: mm)



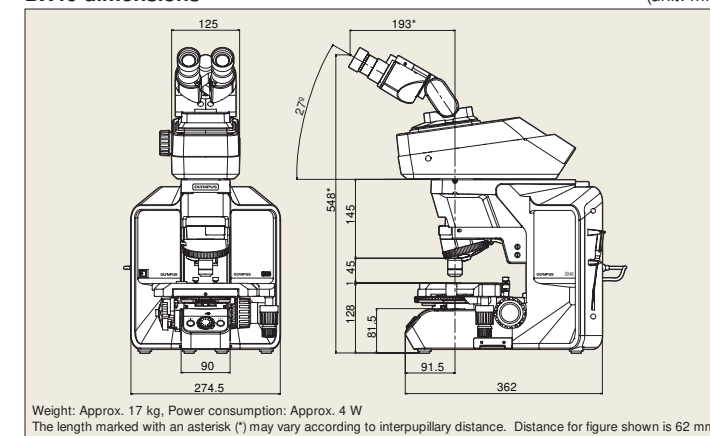
### BX53+U-DO dimensions

(unit: mm)



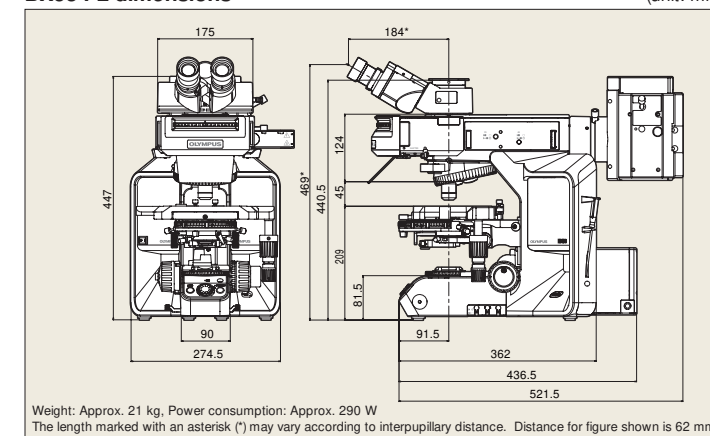
### BX46 dimensions

(unit: mm)



### BX53 FL dimensions

(unit: mm)



### BX53+U-MDO10 dimensions

(unit: mm)

