# OLYMPUS®

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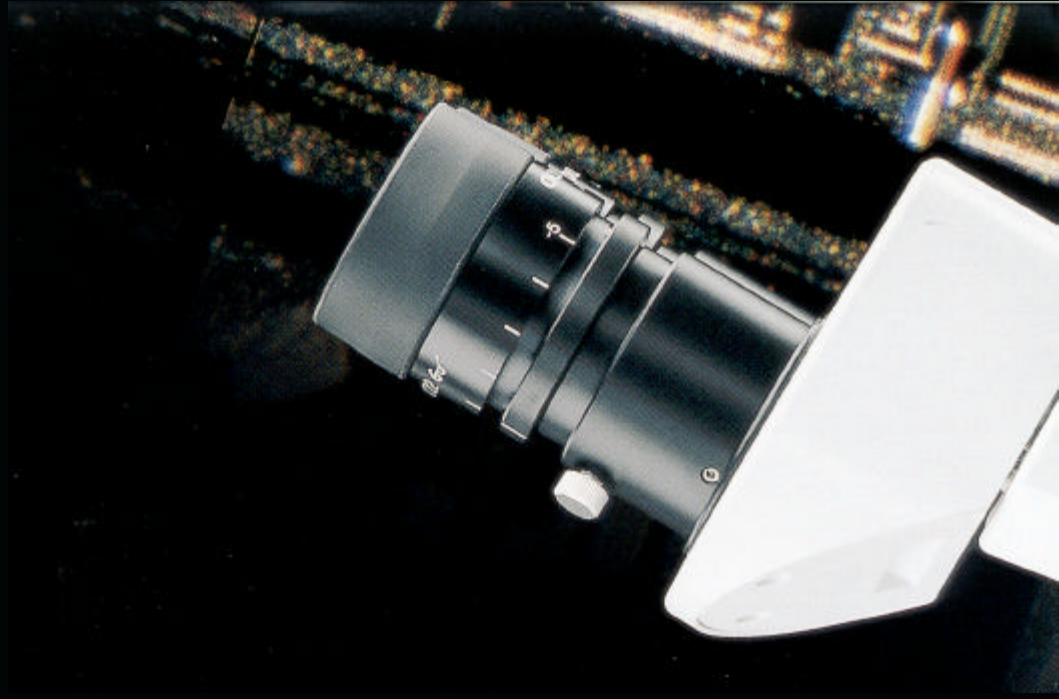
RESEARCH STEREOMICROSCOPE SYSTEM

# SZX

**SZX12/SZX9**

## *For Industrial Applications*



# Today's First Choice: The SZX Research Stereo Microscope System

## Setting New Standards In Observation Clarity, System Flexibility And Ease Of Use

Zoom stereo microscopes play an increasingly important and valuable role in the world of modern industry. Wherever they're used, whatever the application, they must offer consistently clear and effective observation of specimens that range widely in both size and material. That's why system flexibility is crucial — along with adequate working distance, wide zoom range, natural image presentation and ergonomic design for easy, comfortable operation.

The SZX Series sets new standards in all these areas, building on the success of the SZH series that preceded it. The key is new technology: optical design advances derived from UIS optics development, and sophisticated system refinements that ensure compatibility with a wide range of image devices. Designed and built with the renowned Olympus commitment to excellence, the SZX Series opens the way to exciting new horizons in zoom stereo microscopy.


CLICK
CLICK STOP
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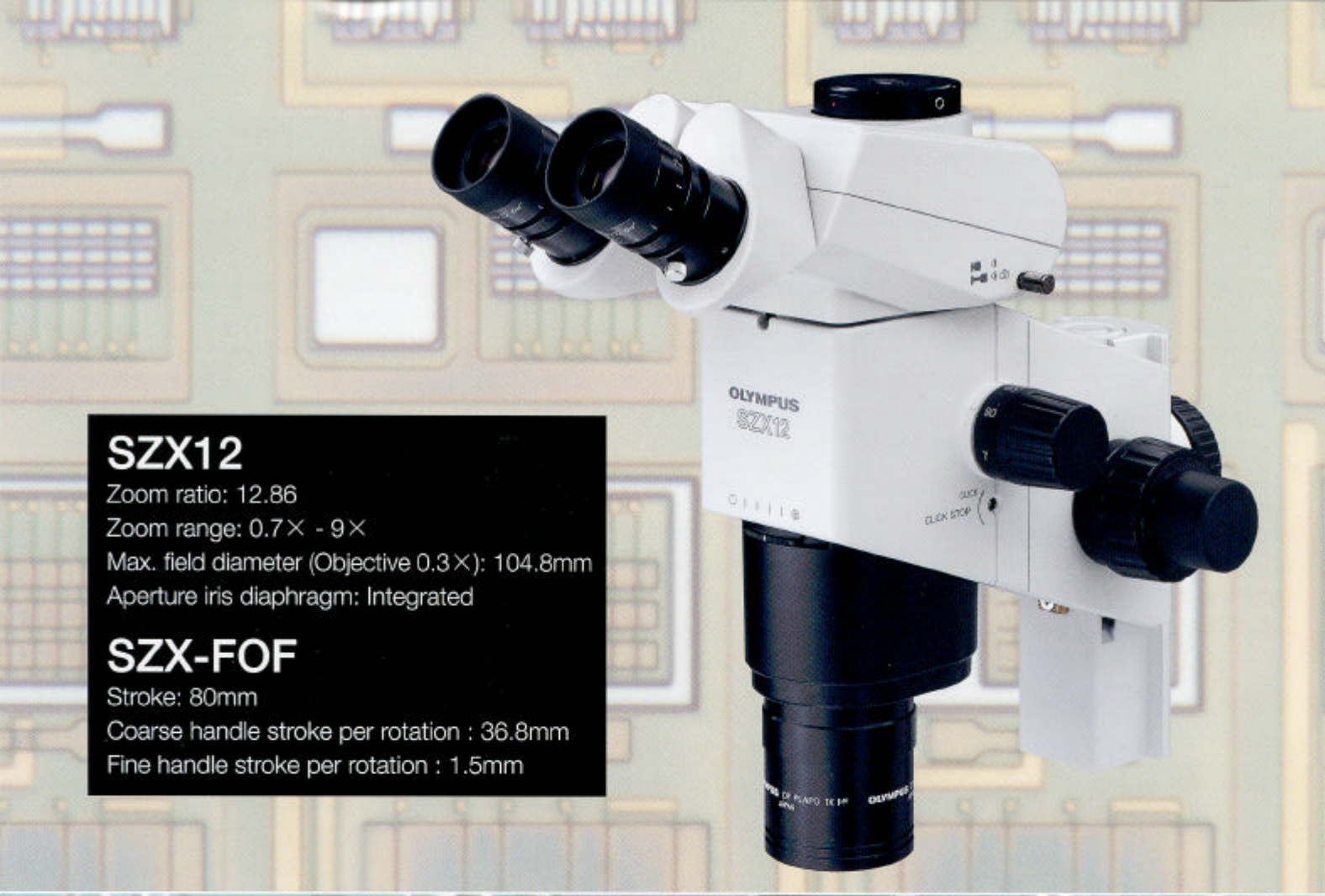
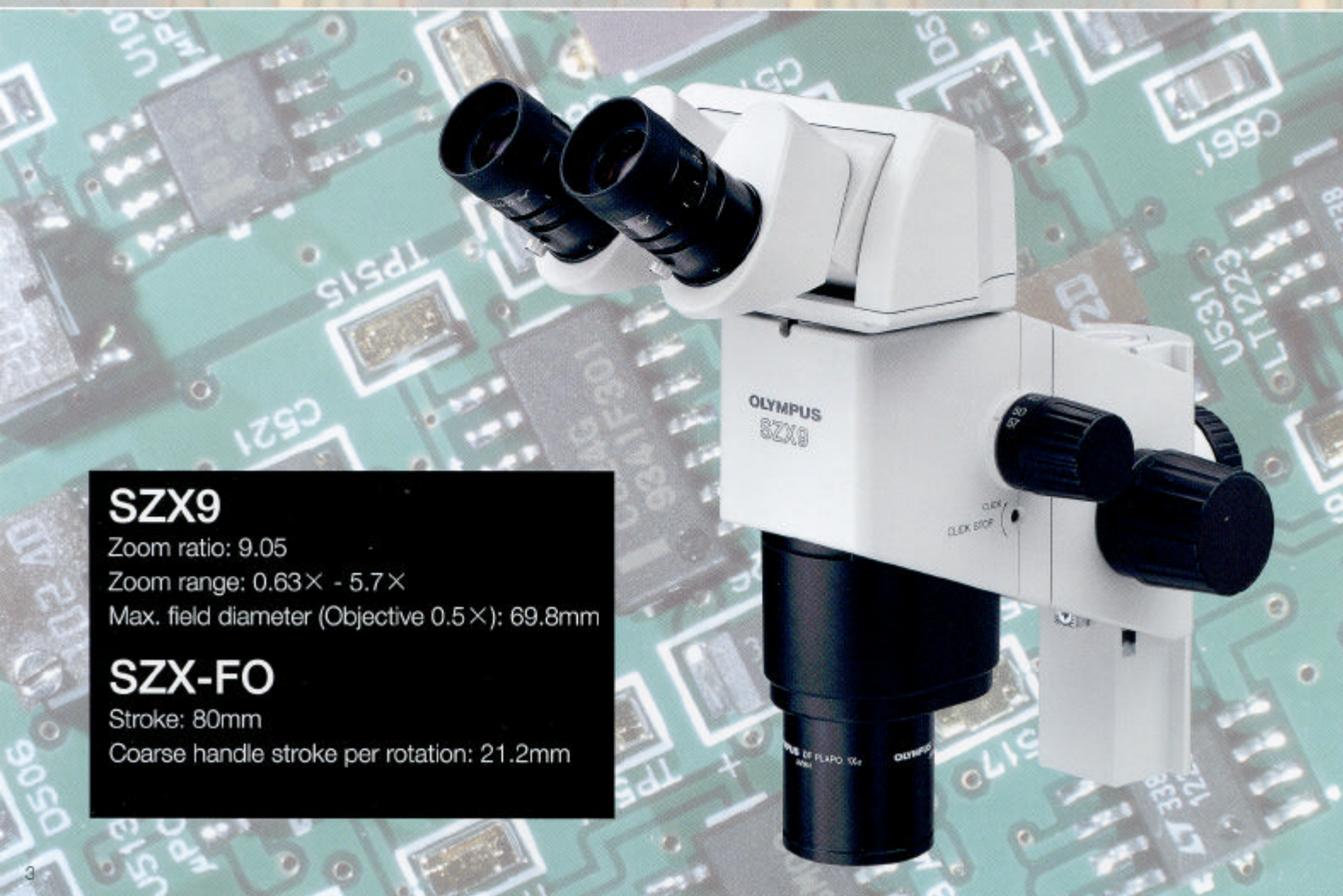



## SZX12

Zoom ratio: 12.86
Zoom range: 0.7× - 9×
Max. field diameter (Objective 0.3×): 104.8mm
Aperture iris diaphragm: Integrated

## SZX-FOF

Stroke: 80mm
Coarse handle stroke per rotation : 36.8mm
Fine handle stroke per rotation : 1.5mm




## SZX9

Zoom ratio: 9.05
Zoom range: 0.63× - 5.7×
Max. field diameter (Objective 0.5×): 69.8mm

## SZX-FO

Stroke: 80mm
Coarse handle stroke per rotation: 21.2mm

# SZX12 And SZX9: World-beating Performances In Image Recording And Operability.


**SZX12 zoom body I SZX-ZB12**
From 0.7 X - 9X, the SZX12 offers a zoom ratio of 12.86 — currently unmatched anywhere in the world. Equally impressive is the diameter of the observation field (31.43mm) achieved with a 1X objective. The zoom body has an integrated aperture diaphragm which allows increased stopping effects in high magnification observation, helping the SZX1 2 to deliver outstanding performance in image recording.

**SZX9 zoom body / SZX-ZB9**
From 0.63 X - 5.7 X , the SZX's zoom ratio of 9.05 puts It at the top of Its class and complements the maximum diameter of observation field (34.92mm) achieved with a 1 X objective. This lens performance allows a long working distance with consistently excellent operability. An optional aperture diaphragm unit (SZX-AS) can be attached.


**Coarse and fine focusing unit / SZX-FOF**
The coaxial coarse/fine focusing knob allows quick, easy focusing without removing hands. The torque of knob rotation can be fine-tuned (a tool is supplied) and can be locked to prevent the image from blurring while observation is in progress. A counter balance is installed in the unit, ensuring that operation remains smooth even when multiple units of photomicrography and video cameras are attached.

**Focusing unit / SZX-FO**
The torque of knob rotation is adjusted as with the SZX-FOF, and can be locked at a chosen setting.

**Highly rigid joint body**
All body joints are dovetailed for maximum rigidity. Dual combination light guide (LG-DFI*) or counter balance (SZX-CSP) can be attached.
*merent type of light guide may be of limited reach area.

**Long 80mm stroke focusing unit**
Because the stroke IS 80mm long, objectlves with different working distances can be used simultaneously

**SZX12/SZX9 zoom bodies specifications**

| | SZX-ZBI2 | SZX-ZB9 |
|---|---|---|
| Zoom range | 0.7x-9x | 0.63X-5 7X |
| Zoom ratio | 12.86 | 9.05 |
| Numerical Aperture(Ob.1 X) | 0.11 | 0.10 |
| Field number | 22 | 22 |
| Maxlmum field diameter (0b.I X) | 31.43mm | 34.92mm |
| Aperture stop unit | incorporated | optional |
| Click-stop | incorporated | incorporated |
| Total magnlflcatlon range | 2.1 X-675X | 3.15X- 342X |

**Focusing units specifications**

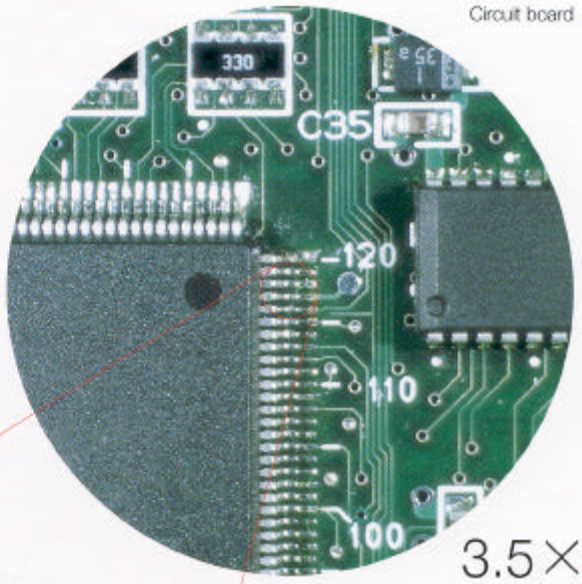
| | SZX-FOF | SZX-FO |
|---|---|---|
| Coarse movement range per rotation | 36.8mm | 21.2mm |
| Fine movement range per rotation | 1.5mm | — |
| Stroke | 80mm | 80mm |
| Counter balance | incorporated | optional |
| Body attachment | dovetail | dovetail |
| Max. carrying weight | 20kg | 1Okg |

# The SZX12 — Offering The Exceptional Zoom Ratio Of 1 : 12.86* And Continuous Magnification Change Of 41 X.

*The SZX12 is equipped with Olympus' original parfocal objective. When used with the revolving nosepiece SZX-2RE, which allows the attachment of two objectives, the total stepless magnification range of 3.5× - 144× (using 10× eyepiece, DFPLFL0.5×PF, DFPLFL1.6×PF) makes speedy observation simple. Total magnification for the SZX12 is 2.1× - 675×, and for the SZX9 is 3.15× - 342× — both figures being leaders in their respective classes.*

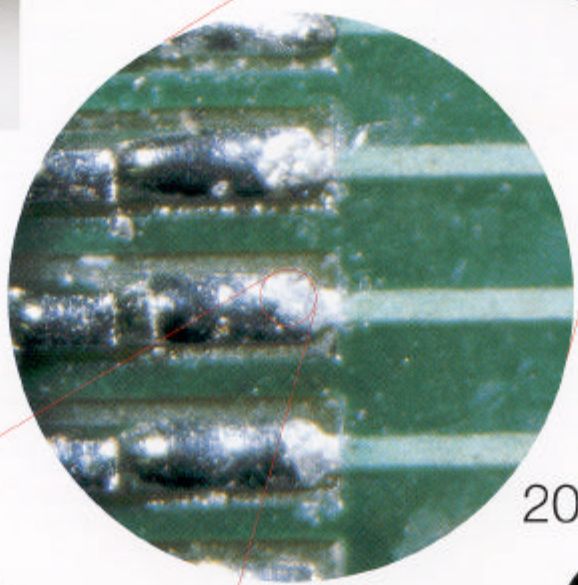
* For all zoom stereo microscopes sold worldwide as of August 1997.

Revolving nosepiece

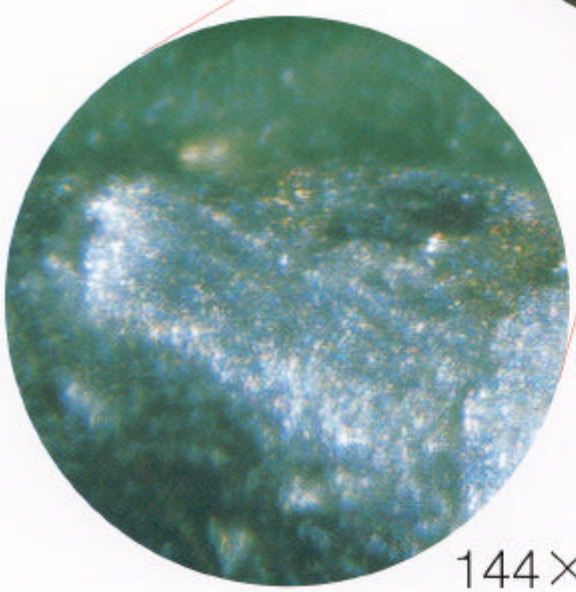



Circuit board

3.5×

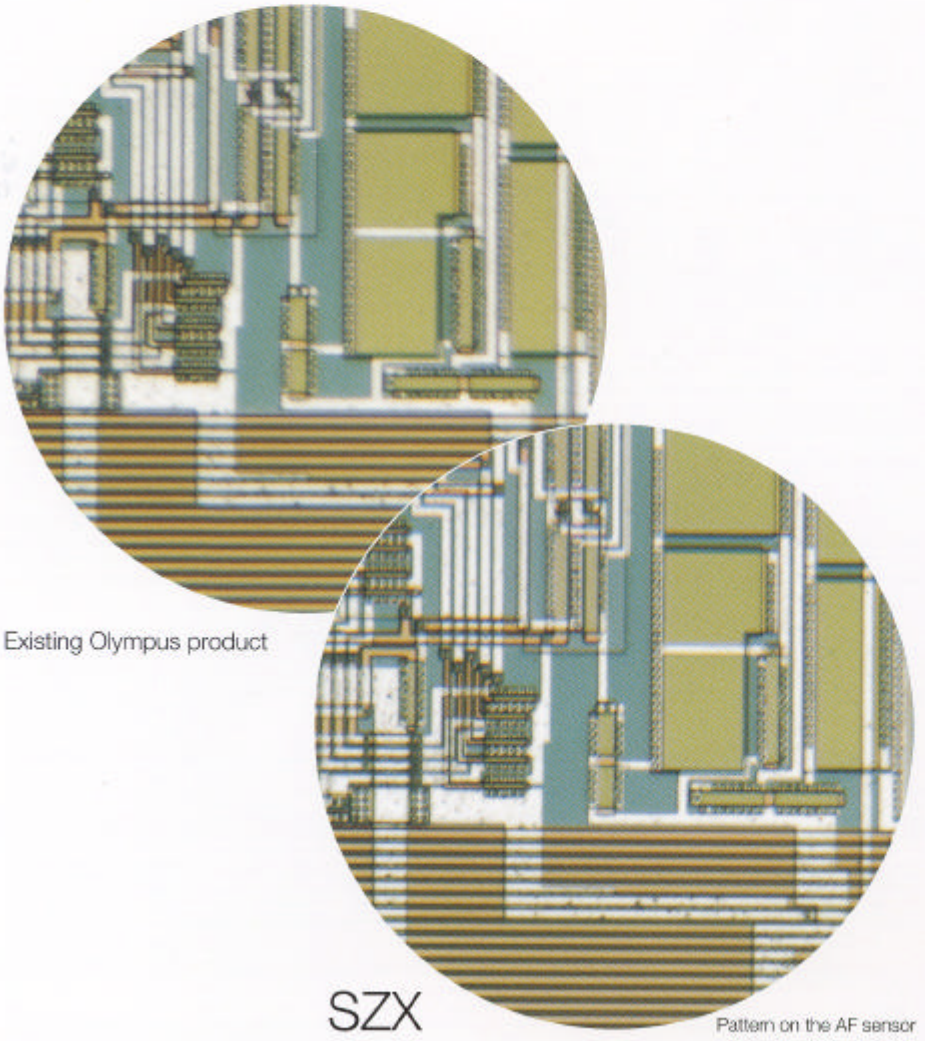


20×



144×

# 800 Lines/mm Resolution: Outstanding Level Of Visibility.



Existing Olympus product

SZX

Pattern on the AF sensor

*Combining the DFPLAPO1×PF for the SZX12 with a SZX-AL20× auxiliary objective sets another new standard, this time in resolution*: 800 lines/mm. Making full use of Olympus expertise in UIS optics technology, the newly designed objective provides high resolution, high contrast and distortion-free images. The lens' apochromatic characteristics eliminate chromatic aberration and ensure excellent color reproduction in all zoom ranges.*

* For all zoom stereo microscopes sold worldwide as of August 1997.

**Parfocal objective / PF Series**

PF series parfocal objectives are used with the SZX12, and are available in the following magnifications: 0.5×, 1.2×and 1.6×. Revolving nosepiece allows easy switching between lenses, and rapid focus by less than a single rotation of the fine focusing knob.

**Auxiliary objective / SZX-AL20×**

This is a 2.5× lens for attachment at the top of DFPLAPO1×PF. It enables high magnification observation at a level which conventional zoom stereo microscopes cannot achieve, thus making the SZX ideal for very fine observations, e.g. of semiconductors and magnetic heads.

SZX-AL20× DFPLAPO1×PF

**Objectives for SZX12**

| Objective | N.A. | W.D.(mm) | Mag. range |
|---|---|---|---|
| DFPLFL0.3× | 0.033 | 130 | 0.21 - 2.7 |
| DFPLFL0.45× | 0.050 | 198 | 0.32 - 4 |
| DFPLFL0.5×PF | 0.055 | 70 | 0.35 - 4.5 |
| DFPLAPO1×PF | 0.110 | 74 | 0.7 - 9 |
| DFPLAPO1.2×PF | 0.132 | 60 | 0.84 - 10.8 |
| DFPLFL1.6×PF | 0.176 | 34 | 1.1 - 14.4 |
| SZX-AL20× | 0.275 | 10/7 | 10 - 22.5 |

**Objectives for SZX9**

| Objective | N.A. | W.D.(mm) | Mag. range |
|---|---|---|---|
| DFPL0.5× | 0.050 | 198 | 0.32 - 2.85 |
| DFPL0.75× | 0.075 | 113 | 0.47 - 4.3 |
| DFPLAPO1×-2 | 0.100 | 87.5 | 0.63 - 5.7 |
| SZX-ACH1× | 0.100 | 90 | 0.63 - 5.7 |
| DFPL1.5× | 0.150 | 53 | 0.95 - 8.55 |
| DFPL2×-3 | 0.200 | 34 | 1.26 - 11.4 |

**Eyepieces**

| Eyepiece | F.N. | Reticle diam. |
|---|---|---|
| WHS10×-H | 22 | Ø24 |
| CROSS-WHS10× | 22 | - |
| WHS15×-H | 16 | Ø24 |
| CROSS-WHS15×-H | 16 | - |
| WHS20×-H | 12.5 | Ø24 |
| CROSS-WHS20×-H | 12.5 | - |
| WHS30×-H | 7 | Ø24 |

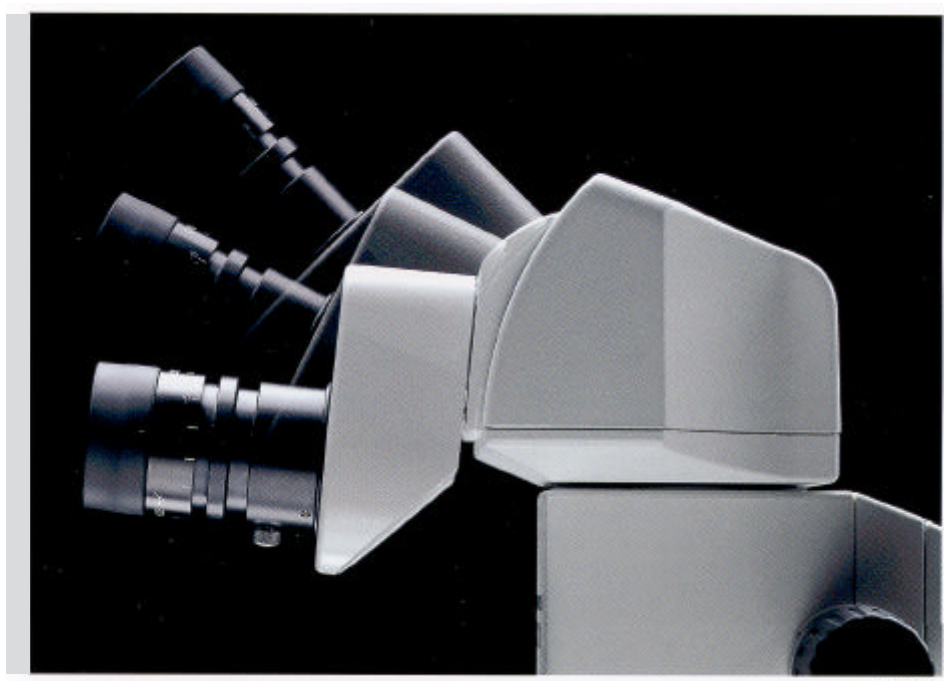
# Advanced Ergonomic Design For Greater Working Comfort.

**With elbows on the desk, operation is even easier.**
When focus adjustment and zoom change can both be performed without removing the user's elbows from the desk, fatigue is significantly reduced. The transmitted light illuminator has been designed to be longer in front and back, but with reduced width and depth: this provides a generous 200 X 200mm area on which to place a large specimen, improves access to the specimen and also saves desk space.

**Slimline body and 30-degree head tilt angle for better observation.**
Because the zoom body is slim, there is better recognition of the specimen beneath the objective. The binocular head SZKBI30 and the trinocular head SZX-TR30 are both designed to be tilted at an angle of 30 degrees: the consequent improvement in working comfort, and the provision of adequate distance between the eyes and the specimen, combine to make observation easier.

**Tilting binocular head and eyepoint adjuster for comfortable observation.**
To make observation as comfortable as possible, Olympus has designed the tilting binocular head SZX-TBI to tilt from 5 to 45 degrees, and an eyepoint adjuster SZX-EPA. These allow different eyepoints. Users no longer have to bend their necks awkwardly to look into the microscope.


**Built-in magnification display with integral click-stop.**
The zoom handle on the right side of the zoom body is marked with a clearly visible magnification display (for use with the combination of 1 X objective and 10 X eyepiece). A click-stop mechanism (which can be overridden) easily gives the magnification sought. The exclusive magnification display rings allow easy reading of the magnification when objectives other than 1X are being used.



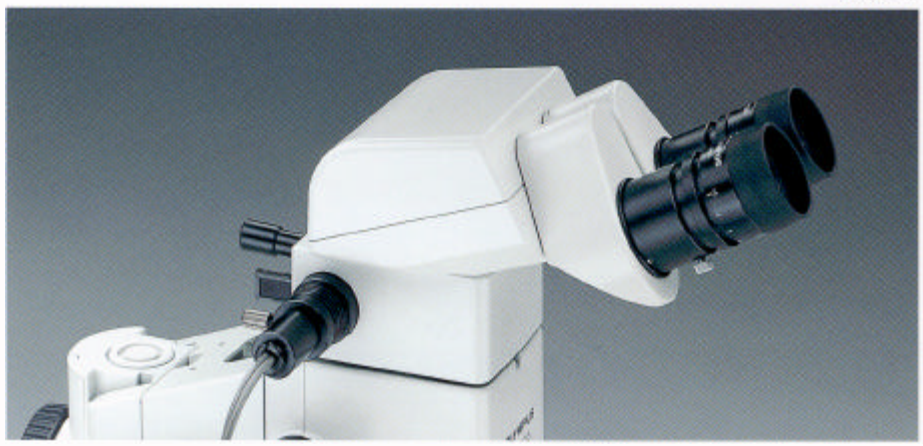
SZX-TBI

# ideal For Training And Group Discussions: Just Follow The Arrow.

SZX-SDO

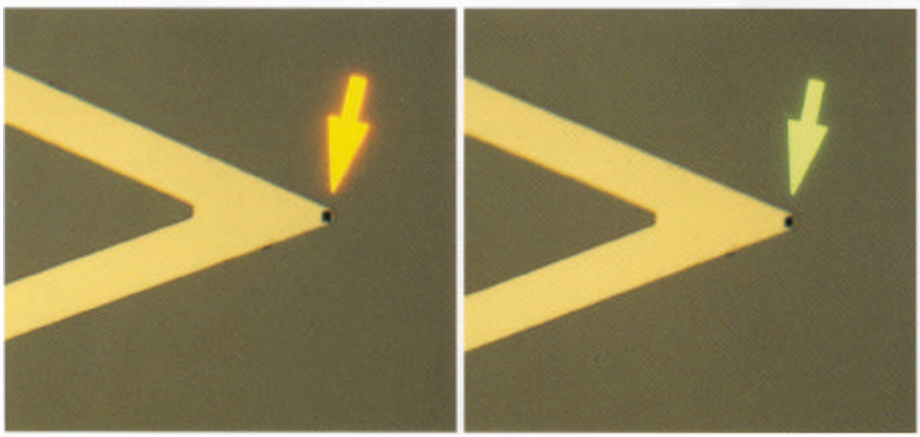
*Side by side discussion tube and arrow pointers are essential tools in classroom and training situations where aspects of operation and inspection must be communicated in detail. The arrow pointer can be displayed on images or monitors to highlight particular areas or features under discussion.*

**Side by side discussion tube / SZX-SD0**
A generous 600mm of space separates primary and secondary observers, so there is no problem of crowding to compromise operational comfort. The integrated pointer can be displayed in different colors (yellow and red switchable) depending on the specimen.



SZX APT

**Arrow pointer / SZX-APT**
The arrow pointer can be superimposed on a picture or any observation image — a convenient, effective and economical system for classrooms and when making pictorial documents for quality assurance or quality control.



Triangular cantilever: red arrow (left), yellow arrow (right)

# Additional Equipment For More Flexible, Efficient Image Recording.

*When a trinocular head and a beam-splitter are combined a total of 3 photomrcrography units or video cameras can be attached simultaneously. The SZX Series also features a range of mount adapters to accommodate to various additional Image devices. Drgrtal cameras are particularly useful, allowing easy image filing slide making and image transmission via a personal computer.*

**Beam splitter / SZX-BS**
Combining this adapter and SZX-PHA or SZX-SLR allow a 35mm SLR camera, a video camera and another photomicrography unit to be attached on both sides of the body. The optical path is switchable in three stages: 100% observation, 100% photo/video, or 50% observation and 50% photo/video. The 100% optical path is best for observing and taking a dark specimen.

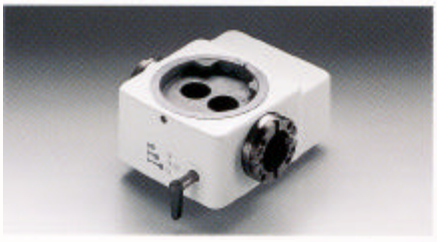
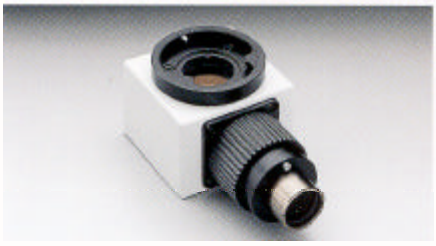


**Photo adapter / SZX-PHA**
Combining a wide range of camera mounts allows SZX microscopes to be linked to various video cameras.



**SLR adapter / SZX-SLR**
This unit allows a 35mm SLR camera to be attached A separate OM mount adapter (PM-CAMS2) is necessary to attach the camera itself.



SZX-SLR+SZX-BS+SZX-PHA


SLX BS+SZX-PHA

**A range of video camera adapters**
A range of adapters is available to accommodate different video cameras to different intermediate magnifications and mounts. The 0.25 X C-mount video port U-TV0.25×C, with rotating mount and parfocal adjusting, combined with a I/3" video camera, gives an image inscribed within the observation field These adapters can be attached to the trinocular head SZX-TR30 and the photo adapter SZX-PHA directly.


### Automatic Photomicrography system / PM30

With the PM30, shooting is simple — requiring nothing more than a touch on the shutter release — because the system's integrated super FL auto mode allows fully automatic exposure of fluorescent photos for consistently excellent results. Normal auto mode should be selected for automatic shooting of non-fluorescent specimen images. Among its wealth of features, the PM30 offers auto bracketing, 0.1% to 1% spot measurements, 3 types of photometry areas with a 30% average measurement, and data backup by memory card.

### PM30 specifications

| | | |
|---|---|---|
| Automatic exposure control unit | Measuring system | Two-dimensional split measuring |
| | Photometric modes | Super FL Auto mode, FL Auto mode, Auto mode, Manual mode, Time mode (AE lock, Multi Exp. also available) |
| | Auto exposure adjustment range | 1/125sec. - 68min. (Auto mode, ISO100) |
| | Measuring area | 0.1%, 1% spot measurements<br>30% average measurement |
| Acceptable cameras | | 35mm camera, 4"×5" intermediate adapter,<br>3 1/4"× 4 1/4" Polaroid camera |
| Control unit | | Data input via sheet switches and jog dial.<br>Automatic ISO setting via DX code (with PM-C35DX mounted), manual setting also possible.<br>Reciprocity failure adjustment function.<br>Data backup by internal memory.<br>Auto bracketing (3/5/7 frames). |
| | | Large LCD (backlit) screen (320×240 dot matrix)<br>RS-232C interface<br>IC memory card/printer interface (optional) |
| Power supply | | 100 - 120V, 220 - 240V, 50/60Hz, 150VA |

### Automatic Photomicrography system / PM20

The PM20 system integrates FL auto mode for automatic exposure of fluorescent photomicrography with normal auto mode. More high-performance features are included, yet the design is actually reduced in size. Switching is available between 1% spot measurement and 30% average measurement, and up to 4 predetermined settings can be stored in the internal memory.

### PM20 specifications

| | | |
|---|---|---|
| Automatic exposure control unit | Measuring system | Real-time measuring (TTL) |
| | Photometric modes | FL Auto mode, Auto mode, Manual mode, Time mode (AE lock, Multi Exp. also possible) |
| | Auto exposure adjustment range | 1/125sec. - 68min.(Auto mode, ISO100) |
| | Measuring area | 0.1% spot measurement, 30% average measurement |
| Acceptable cameras | | 35mm camera, 4"×5" intermediate adapter,<br>3 1/4"×4 1/4" Polaroid camera |
| Control unit | | Data input via sheet switches and jog dial.<br>Automatic ISO setting via DX code (with PM-C35DX mounted), manual setting also possible<br>Reciprocity failure adjustment function.<br>Data backup by internal memory<br>Auto bracketing (3/5/7 frames) |
| | | LCD (backlit) screen |
| Power supply | | 100 - 120V, 220 - 240V, 50/60Hz,50VA |

### Automatic photography system / PM-10AK3

This allows the attachment of large-format cameras as well as 35mm cameras. The system is compact, yet packed with features that are easy to elect and operate — including automatic exposure and auto/manual film advance.

### PM-10AK3 specifications

| | | |
|---|---|---|
| Automatic exposure control unit | Measuring system | Real-time (TTL) |
| | Exposure modes | AUTO and TIME modes |
| | Auto exposure adjustment range | 1/125 sec - 4 minutes (Auto mode, ISO100) |
| | Measuring area | 30% average measurement |
| Acceptable cameras | | 35mm camera, 3 1/4"×4 1/4" Polaroid camera,<br>4"×5" sheet film (Recordata back can be mounted on 35mm camera back) |
| Control unit | | Data input via dial, manual ISO setting,<br>estimated exposure time is indicated in 4 step LED |

# Seen In The Right Light: Illumination That Suits The Specimen.

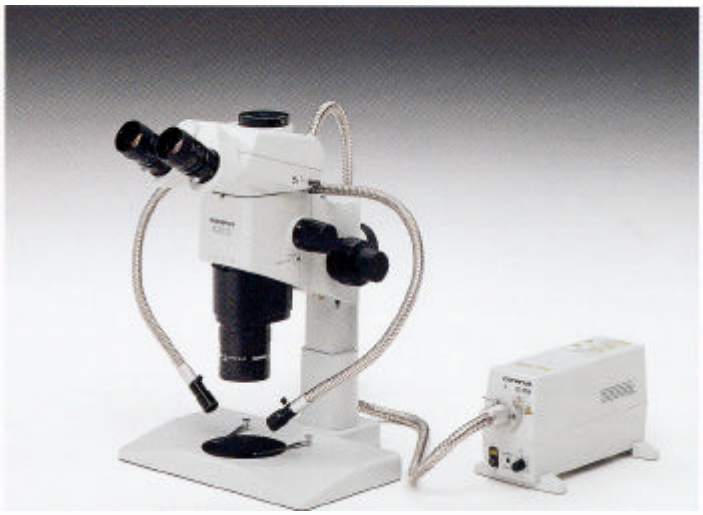
## Reflected Light Illuminators (Different types of light sources and light guides may be offered in each area)

**Light guide power supply /**
**LG-PS2**
This long-life 12V 1 OOW halogen lamp assures bright, reliable illumination for long hours, and there's a mechanical stop which allows light intensity adjustments without changing the color temperature. The unit is small and compact, easy to carry, and conforms to relevant safety standards, making it the ideal light source for the SZX series.

**Coaxial illuminator /**
**szx-ILLC**
Used with the dual flexible light guide LG-DF, this illuminator provides bright, steady illumination without tiresome centering adjustments. It's particularly effective for obsewing structure, such as imperfections on metal surfaces, patterns on IC or LCD, which don't show up under conventional oblique illumination.

SLxl2 + SZX-ILLC + LG DF + LG PS2

**Dual combination light guide /**
**LG-DFI**
The standard SZX light guide can be mounted directly on SZX-FOF/SzX-FO and keeps the observation posrtion properly illuminated even If focusing shifts when one specimen IS changed for another. Mounting IS designed to avoid hindering observation.



SZX12 + LG-DFI + LG-PS2

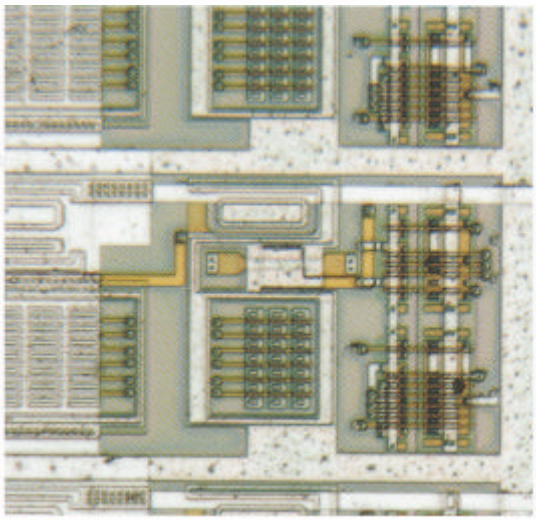
**Dual inter-lock light guide /**
**LG-DI**
Employs random positioning to give bright, steady illumination — especially effective when high contrast images are required. The condenser lens HLL301 can be mounted on the end of the light guides.

LG-DI + LG-PS2

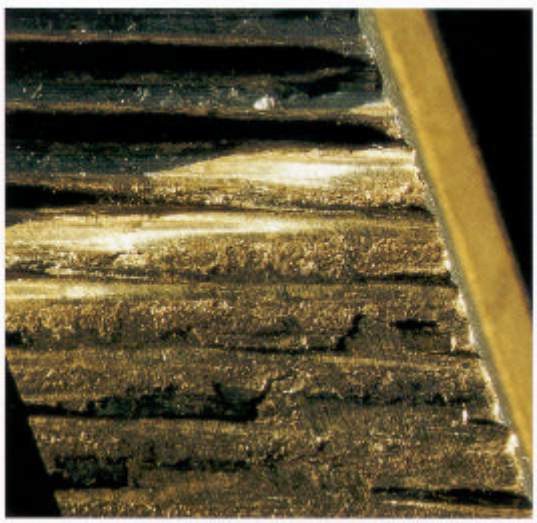
**Ring light guide /**
**LG-R66**
With Its 066 mounting diameter, this ring light guide has been specially developed for stereo microscope compatibility. When mounted with ring light adapter SZX-LGR66, It provides bright, clear images by illuminating from several angles, thus eliminating obstructive specimen shadows,

**Reflected illumination adapter /**
**LG-ILLR** (available from March 1998)
This adapter is attached to ring light guide LG-R66. This ensures soft, effective illumination even when conducting observation of highly reflective specimens,

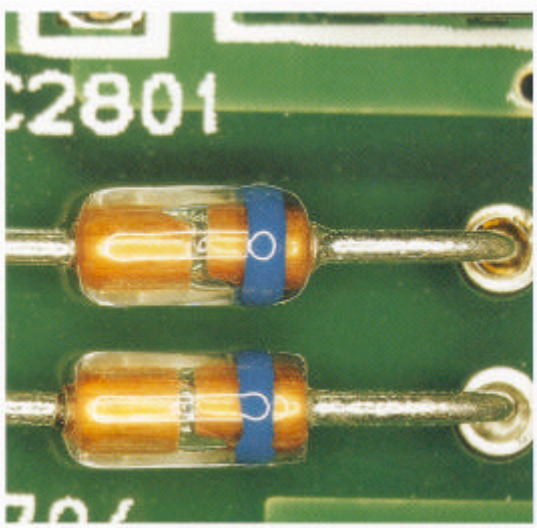
SZX12 + SLX-LGR-66 + LGR66 + LG-PS2



Pattern on the Charge Modulation Device ( CMD )



Surface of the rack after resistance test




Diode on the clrcult board

## ■Transmitted Light Illuminators

**Transmitted light illuminator / SZX-ILLK**

This cost-effective transmitted light illuminator with built-in 6V 30W halogen lamp is particularly suitable for use with 1X objectives. It uses oblique incident light illumination to provide contrasting images of a transparent specimen.

**High-level transmitted light illuminator / SZX-ILLB**

With its variable magnification range (from 1X to high magnification), this unit provides clear, effective illumination. Light volume and color temperature are adjusted by means of three built-In filters. Used with a high magnification objective such as the SZX-AL20X, it permits observation of extremely detailed, high contrast structures under unique, slit stop oblique illumination — an advantage which cannot be matched by conventional stereo microscopes.

**Brightfield/darkfield transmitted illuminator / SZX-ILLD**

This unit features newly developed optical characteristics for bright illumination distributed evenly over a wide field diameter. The unit can switch between brightfield illumination optics which rlluminate every area in the lowest magnification field diameter (Ø63mm) In an DFPLFL0.5 X PF objective, to darkfield illumination optics for a 5 X total magnification field diameter (044mm). Wide range of general applications.

**Transmitted light guide adapter / SZX-TLGAD**

**Single flexible light guide/LG-SF***

This combination allows the light source to be separated from the transmitted illuminator, so that there is no temperature increase on the stand at all. Indispensable in cases when the specimen temperature must be strictly managed.

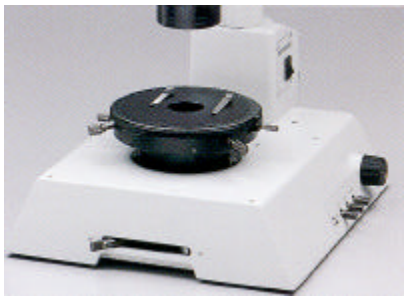
*Different types of light guides may be offered in each area.

SZX12 + SZX-ILLB + SZX-TLGAD + LG-SR + LG-PS2

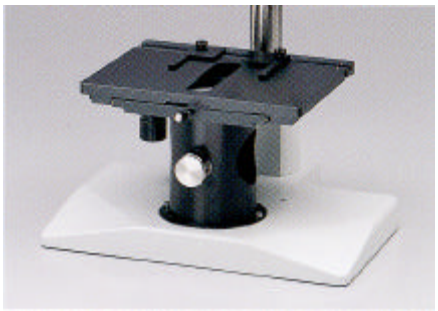
# A Wide Range Of Accessories For Other Observation Applications.

**Large stand / SZX-STL**
The stand offers excellent stability, making it Ideal for photomrcrography and video documentation

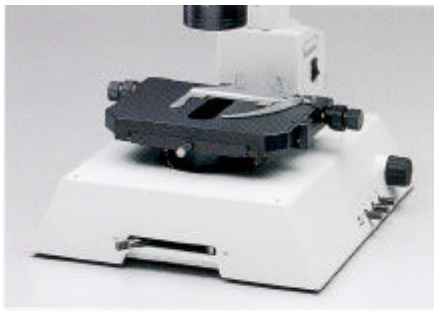
**Universal stand / SZ-STU2**
This stand is designed for observation and photomicrography of specimens which are too large for a stand. A structure based on dual horizontal poles and linear ball bearings ensures smooth horizontal movement and rotation. The mechanism can be tilted forward, backward, right and left, allowing quick and precise approach to the chosen observation area.




**BX stage adapter type 1 / SZX-STAD1**
Allows use of the BX rotating stage (U-SRG) to various SZX stands and transmitted light illuminatrons. This is especially valuable rn polarized observations and photomrcrographrc framing.

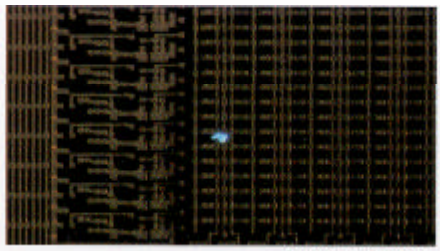



**BX stage adapter type 2 / SZX-STAD2**
Allows use of a BX mechanical stage by combining with various SZX stands and transmitted light illuminators Partrcularly suitable for accurate X-Y movement of specimens.




**BH stage adapter type 1 / SZH-STAD1**
Allows use of a BH2 mechanical stage (BH2-SH) by combining with various SZX stands and transmitted light illuminators Partrcularly suitable for accurate X-Y movement of specimens.

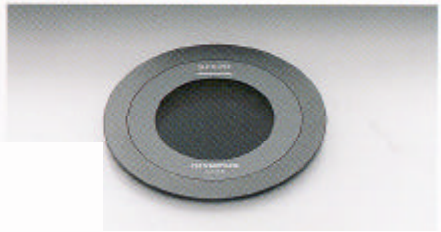
Fluorescence units



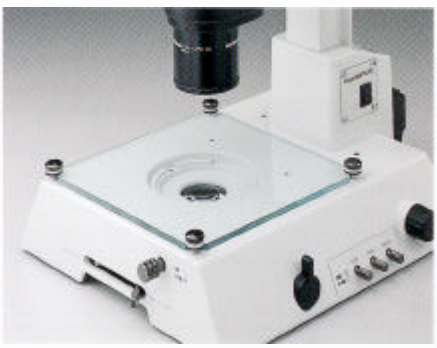
Debris on the wafer

**Fluorescence units**
(available from March 1998)
The fluorescence units make it possible to inspect subsurface imperfections or to observe photoresist residues under fluorescence microscopy.

**Drawing attachment / SZX-DA**
This attachment enables the user to make an accurate drawing of the specimen — a valuable alternative to photomrcrography, since only the required areas are drawn. Can be mounted on either the right or the left side.



**Simple polarizer/SZX-PO**
The polarizer is mounted on the stage plate mount of the transmitted light illuminator, and used to observe complex images such as thin mineral substances, During observation, an optional analyzer (see below) should be mounted on the objectives.



**Large stage plate/SZX-CL**
(available from March 1998)
The large plate can be attached with 200 X 200mm glass plate SZX-CL to the transmitted light unit. The plate covers almost the whole surface of the stand and makes It easy to clean or sterilize the stage. It's also possible to insert a plane illumrnator, or sheets of colored paper, to obtain a variety of lighting effects.

**Focusing unit/SZ-FO**
This unit is movable, allowing simultaneous focus on itself and on the specimen. As a result, the user can observe or photograph specimens of different thickness without changing the eyepoint.

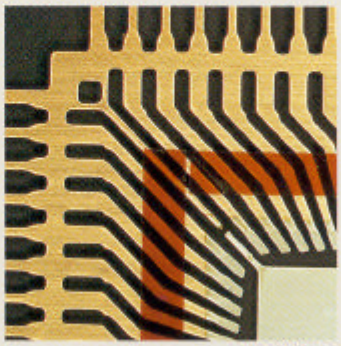
**Rotatable analyzer / SZX-AN**
This analyzer is mounted on the top of the objectives and used in conjunction with the simple polarizer SZX-PO. Used for both polarized transmitted light and polarized reflected light observation, the analyzer is also effective in avoiding direct reflected light.

# A Full Range Of Effective Combinations To Suit Every Need

## Examples of SZX9 combination

### SZX9-1213

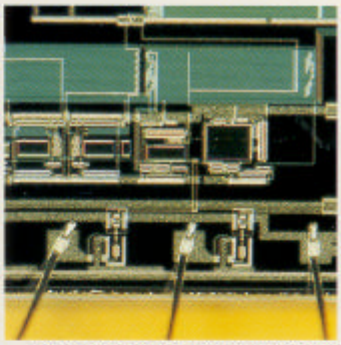
This economical combination features 30 degree binocular head SZX-BI30, focusing unit SZX-FO and apochromat objective SZX-ACH1×, and is suitable for a wide variety of basic observations and work applications. The SZX-ACH1× objective has a 90mm working distance.



Lead frame

### SZX9-2212

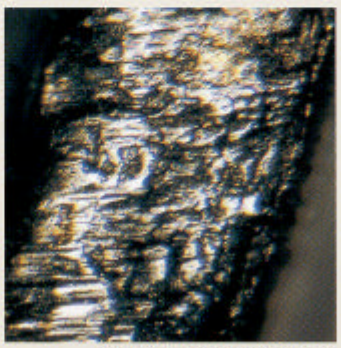
Combination with tilting binocular head SZX-TBI, focusing unit SZX-FO and apochromat objective DFPLAPO1×-2. The tilting tube, which enables to change the tilt angle of eyepieces from 5 to 45 degrees, allows extended observations without fatigue, while the apochromat objective ensures natural color reproduction.



Wire bonding section on the AF sensor

### SZX9-3112

This combination consists of trinocular tube SZX-TR30, coarse and fine focusing unit SZX-FOF, apochromat objective DFPLAPO1×-2 and arrow pointer SZX-APT. The SZX-FOF unit enhances operational efficiency by making delicate focusing easy, while the arrow pointer (compatible with photo, monitor and video printer), helps to ensure efficient image recording.



Expanded surface of the rack

# SZX-1213

**Observation head, intermediate tube**
①SZX-BI30 ②SZX-TBI
③SZX-TR30 ④SZX-BI30+SZX-BS
⑤SZX-TBI+SZX-BS
⑥SZX-BI30+SZX-DO

**Focusing unit**
①SZX-FOF
②SZX-FO

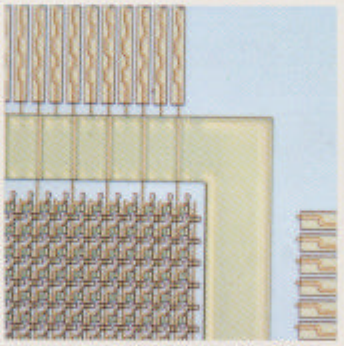
**Objective**
①DFPLAPO1×PF ②DFPLAPO1×-2 ③SZX-ACH1×
④DFPLAPO1×PF+DFPLFLO0.5×PF
⑤DFPLAPO1×PF+DFPLFLO1.6×PF
⑥DFPLAPO1×PF+DFPLAPO1.6×PF+SZX-AL20
⑦DFPLAPO1.2×PF ⑧DFPLAPO1×PF+SZX-AL20×

**Stand**
①SZX-ST ②SZX-ILLK ③SZX-ILLB ④SZX-ILLD
⑤SZX-ILLC ⑥SZX-STL2(SDO) ⑦SZX-STL2(SDO)

## Examples of SZX12 combination

### SZX12-2111

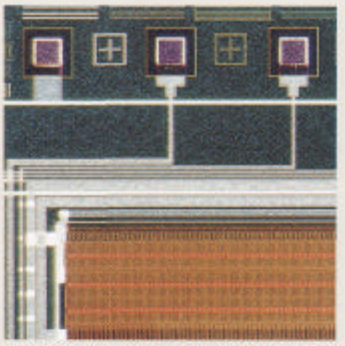
A package for standard applications: tilting binocular head SZX-TBI, coarse and fine focusing unit SZX-FOF and apochromat parfocal objective DFPLAPO1×PF. This combination designed for fatigue-free observation via the tilting binocular head. Together with an image recording intermediate tube such as the SZX-BS, this set can be connected to photomicrography and video units without using a trinocular head.



Pattern on the Charge Modulation Device (CMD)

### SZX12-3111

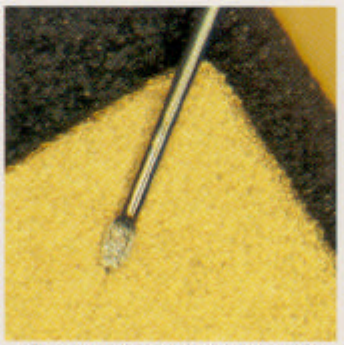
This set consists of 30 degree trinocular head SZX-TR30, coarse and fine focusing unit SZX-FOF and apochromat parfocal objective DFPLAPO1×PF. The trinocular head lets you use up to three photomicrography and video units when combined with an image recording intermediate tube like the SZX-BS.



Pattern on the Charge Modulation Device (CMD)

### SZX12-3115

This versatile combination features 30 degree trinocular head SZX-TR30, coarse and fine focusing unit SZX-FOF, apochromat parfocal objective DFPLAPO1×PF, objective DFPLAPO1.6×, revolving nosepiece SZX-2RE and arrow pointer SZX-APT. The revolving nosepiece and two objectives (other combinations are also possible) allow a wide range of magnification changes. The trinocular head and arrow pointer make a highly functional combination, especially in terms of image recording; in addition, the arrow pointer can be imprinted on to film for more effective presentations and training sessions.



Wire bonding section on the AF sensor

## Specifications

| Item | Specifications | |
|---|---|---|
| Zoom microscope bodies<br>*Total magnification (Objective 1×, eyepiece 10×) | SZX-ZB12 | SZX-ZB9 |
| | Zoom variable magnification system with parallel optical axis, Zoom drive system: Horizontal handle<br>Click-stop for various zoom positions incorporated | |
| | Zoom ratio: 12.86(0.7×-9×)<br>Total magnification indication*: 7/10/12.5/16/20/25/32/40/50/63/90 | Zoom ratio: 9.0 (0.63×-5.7×)<br>Total magnification indication*: 6.3/8/10/12.5/16/20/25/32/40/50/57 |
| | Objective mounting: Screw mount | |
| | Built-in aperture iris diaphragm | Aperture diaphragm unit (SZX-AS) is available |
| Focusing assembly | SZX-FOF: Fine focusing unit<br>Focus: Rack and pinion with roller guide(with torque adjustment ring for coarse focusing), built-in counter balance, coarse and fine coaxial handle, coarse handle stroke: 80mm (stroke per rotation: 36.8mm), fine handle stroke: 80mm (stroke per rotation: 1.5mm) | |
| | SZX-FO: Focusing unit<br>Focus: Rack and pinion with roller guide(with torque adjustment ring for coarse focusing), counter balance optional, coarse handle, coarse handle stroke: 80mm, coarse handle stroke per rotation: 21.2mm | |
| Observation heads | SZX-TR30: 30 degree trinocular head<br>Tilting angle: 30°, Light path selection: 2 steps (100% binocular tube, 20% binocular tube and 80% photo),<br>Interpupillary distance adjustment: 50 - 76mm, with eyepiece fixing knob, eyepiece: WHS series | |
| | SZX-BI30: 30 degree binocular head<br>Tilting angle: 30°, Interpupillary distance adjustment: 50 - 76mm, with eyepiece fixing knob, eyepiece: WHS series | |
| | SZX-TBI: Tilting binocular head<br>Tilting angle: 5° - 45°,<br>Interpupillary distance adjustment: 50 - 76mm, with eyepiece fixing knob, eyepiece: WHS series | |
| Stands | SZX-ST: Stand<br>Pillar height: 270mm, base dimension: 300(W)×260(D)×30(H)mm,<br>stage clips are mountable, with stage adapter fixing screw holes | |
| | SZX-STL: Large stand<br>Pillar height: 400mm, base dimension: 400(W)×350(D)×28(H)mm,<br>stage clips are mountable, drop prevention collar (SZX-R) is necessary | |

| Objectives<br>W.D.: Working Distance<br>PF: Parfocal objectives<br>*Auxiliary long pillar and drop prevention collar (SZX-R) are necessary | For SZX-ZB12 | | | For SZX-ZB9 | | |
|---|---|---|---|---|---|---|
| | Objectives | N.A. | W.D. | Objectives | N.A. | W.D. |
| | DFPLFL0.3×<br>DFPLFL0.45×<br>DFPLFL0.5×PF<br>DFPLAPO1×PF<br>DFPLAPO1.2×PF<br>DFPLFL1.6×PF<br>SZX-AL20× | 0.036<br>0.05<br>0.055<br>0.110<br>0.13<br>0.176<br>0.275 | 130mm*<br>198mm*<br>70mm<br>74mm<br>60mm<br>34mm<br>10/7mm | DFPL0.5×<br>DFPL0.75×<br>DFPLAPO1×-2<br>SZX-ACH1×<br>DFPL1.5×<br>DFPL2×-3 | 0.05<br>0.075<br>0.10<br>0.10<br>0.15<br>0.2 | 198mm*<br>113mm<br>87.5mm<br>90mm<br>53mm<br>34mm |

| Eyepiece<br>*Possible to insert micrometer (ø24mm, 1.5mm thick) | |
|---|---|
| | WHS10×-H * F.N. 22<br>CROSS-WHS10× F.N. 22, with cross lines<br>WHS15×-H * F.N. 16<br>CROSS-WHS15× F.N. 16, with cross lines<br>WHS20×-H * F.N. 12.5<br>CROSS-WHS20× F.N. 12.5, with cross lines<br>WHS30×-H * F.N. 7 |

**Reflected light illuminators specifications** (Different types of light sources and light guide may offered in each area)

| | SZX-ILLC | LG-DFI/DI | LG-R66 |
|---|---|---|---|
| Specifications | Magnification factor: 1.5×<br>Light source: LG-PS2<br>Light guide: LG-DF<br>Fiber diameter: ø6<br>Length: 1,000mm<br><br>Simple polarized light observation is available | Dual inter-lock light guide<br>Light source: LG-PS2<br>Fiber diameter: ø8<br><br>LG-DFI: Flexible part 900mm,<br>Inter-lock part 500mm<br>LG-DI: Inter-lock part 500mm | Ring light guide<br>Light source: LG-PS2<br>Fiber diameter: ø8<br>Flexible part 1,000mm<br>Fixing diameter 66mm, Minimum W.D. 30mm<br><br>Ring light guide adapter for SZX: SZX-LGR66 |
| Option | — | HILL301: spot lens<br>LG-FAD: ø25 filter adapter<br>(worldwide releases March 1998) | LG-R66PL: Polarizer/analyzer set for LG-R66<br>LG-ILLR: Reflected illumination adapter<br>(worldwide releases March 1998) |
| Features | Brighter and evener illumination without adjustment | LG-DFI: Fixed to the focusing unit and illumination is synchronizing with the movement of the microscope. | Bright, even, and no shading illumination is achieved in case of any objectives. |
| Light source specifications | Lamp: 12V 100W long-life (1,000 hrs.) halogen lamp with reflected mirror<br>Rated voltage: 100-120V/220V-240V 50/60Hz<br>Power consumption: 350VA<br>Protection functions: Overheat detection by temperature sensor, over current detection of input/ output current<br>Other functions: Light intensity control and lamp ON/OFF control by external signal, detection of burned out lamp<br>Dimensions: 120(H) × 120 (W) × 235(D)mm Weight: approx. 1.5kg<br>Option: Color filter | | |

## Transmitted illuminators specifications

| Item | Specifications | | |
|---|---|---|---|
| | SZX-ILLK | SZX-ILLB | SZX-ILLD |
| Light source | PHILLIPS 5761 6V30WHAL halogen lamp (average lamp service life: approx. 100 hours under rated usage conditions) | | |
| Light intensity adjustment | Continuously variable system (with built-in transformer) | | |
| Effective illuminated area | ø40mm | | Brightfield: ø63mm,<br>Darkfield: ø45mm |
| Built-in filter | – | LBD, ND6, ND25 one for each | FR, LBD, ND25 one for each |
| Add-on filter | ø45mm frosted filter (45OPL), provided | | |
| Illumination mode | Transmitted brightfield illumination<br>Oblique illumination | Transmitted brightfield illumination<br>Oblique illumination,<br>Slit aperture illumination | Transmitted brightfield illumination<br>Transmitted darkfield illumination |
| Magnification selection | – | 2-step selection between 1×-1.2× and 1.5× or higher objectives | – |
| Pillar height | 270mm | | |
| Weight | Approx. 6kg (13.2lb) | Approx. 6.2kg (13.6lb) | |
| Rated voltage | 100V area: 100/110-120V 0.6A 50/60Hz<br>200V area: 220/230-240V 0.3A 50/60Hz | | |

## Total magnifications and actual field diameters of SZX-ZB12

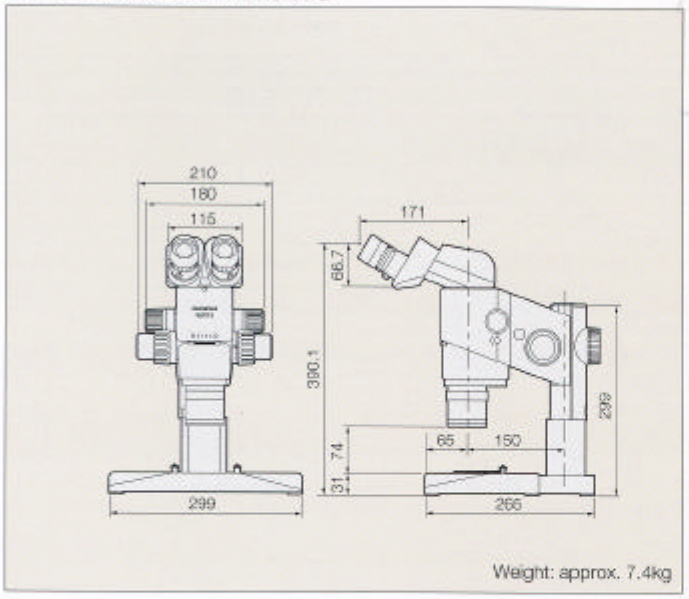
| Objective | Eyepiece | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | WHS10×-H | | WHS15×-H | | WHS20×-H | | WHS30×-H | |
| | total mag. | field diameter | total mag. | field diameter | total mag. | field diameter | total mag. | field diameter |
| DFPLFL0.3× | 2.1× - 27× | 104.8 - 8.1mm | 3.15× - 40.5× | 76.2 - 5.9mm | 4.2× - 54× | 59.5 - 4.6mm | 6.3× - 81× | 33.3 - 2.6mm |
| DFPLFL0.45× | 3.15× - 40.5× | 69.8 - 5.5mm | 4.73× - 60.7× | 50.8 - 4.0mm | 6.3× - 81× | 39.7 - 3.1mm | 9.6× - 121.5× | 22.2 - 1.7mm |
| DFPLFL0.5×PF | 3.5× - 45× | 62.9 - 4.9mm | 5.25× - 67.5× | 45.7 - 3.6mm | 7× - 90× | 35.7 - 2.8mm | 10.5× - 135× | 20.0 - 1.6mm |
| DFPLAPO1×PF | 7× - 90× | 31.4 - 2.4mm | 10.5× - 135× | 22.9 - 1.8mm | 14× - 180× | 17.9 - 1.4mm | 21× - 270× | 10 - 0.78mm |
| DFPLAPO1.2×PF | 8.4× - 108× | 26.2 - 2.0mm | 12.6× - 162× | 19.0 - 1.5mm | 16.8× - 216× | 14.9 - 1.2mm | 25.2× - 324× | 8.3 - 0.65mm |
| DFPLFL1.6×PF | 11× - 144× | 20 - 1.5mm | 16.8× - 216× | 14.3 - 1.1mm | 22.4× - 288× | 11.2 - 0.87mm | 33.6× - 432× | 6.25 - 0.49mm |
| SZX-AL20×* | 100× - 225× | 22 - 0.98mm | 150× - 337.5× | 1.6 - 0.71mm | 200× - 450× | 1.25 - 0.56mm | 300× - 675× | 0.44 - 0.31mm |

* This is the auxiliary objective mounted on DFPLAPO1×PF. Figures indicate recommended magnifications.

## Total magnifications and actual field diameters of SZX-ZB9

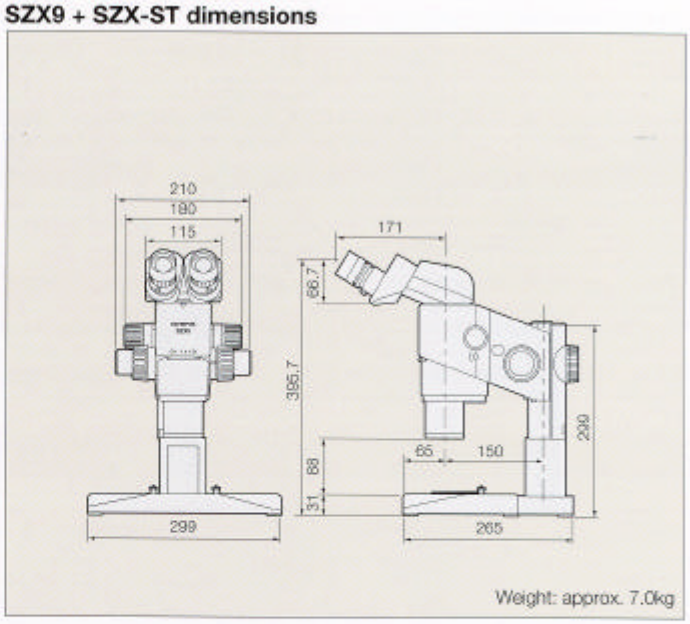
| Objective | Eyepiece | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | WHS10×-H | | WHS15×-H | | WHS20×-H | | WHS30×-H | |
| | total mag. | field diameter | total mag. | field diameter | total mag. | field diameter | total mag. | field diameter |
| DFPL0.5× | 3.15× - 28.5× | 69.8 - 7.7mm | 4.7× - 42.8× | 50.8 - 5.6mm | 6.3× - 57× | 39.7 - 4.4mm | 9.5× - 85.5× | 22.2 - 2.5mm |
| DFPL0.75× | 4.7× - 43× | 46.6 - 5.1mm | 7.1× - 64.1× | 33.9 - 3.7mm | 9.5× - 85.5× | 26.5 - 2.9mm | 14.2× - 128× | 14.8 - 1.6mm |
| DFPLAPO1×-2 | 6.3× - 57× | 34.9 - 3.9mm | 9.5× - 85.5× | 25.4 - 2.8mm | 12.6× - 114× | 19.8 - 2.2mm | 18.9× - 171× | 11.1 - 1.2mm |
| SZX-ACH1× | 6.3× - 57× | 34.9 - 3.9mm | 9.5× - 85.5× | 25.4 - 2.8mm | 12.6× - 114× | 19.8 - 2.2mm | 18.9× - 171× | 11.1 - 1.2mm |
| DFPL1.5× | 9.5× - 85.5× | 23.3 - 2.6mm | 14.2× - 128.3× | 16.9 - 1.9mm | 19× - 171× | 13.2 - 1.5mm | 28.4× - 256.5× | 7.4 - 0.82mm |
| DFPL2×-3 | 12.6× - 114× | 17.5 - 1.9mm | 18.9× - 171× | 12.7 - 1.4mm | 25.2× - 228× | 9.9 - 1.1mm | 37.8× - 342× | 5.6 - 0.61mm |

## SZX12 + SZX-ST dimensions



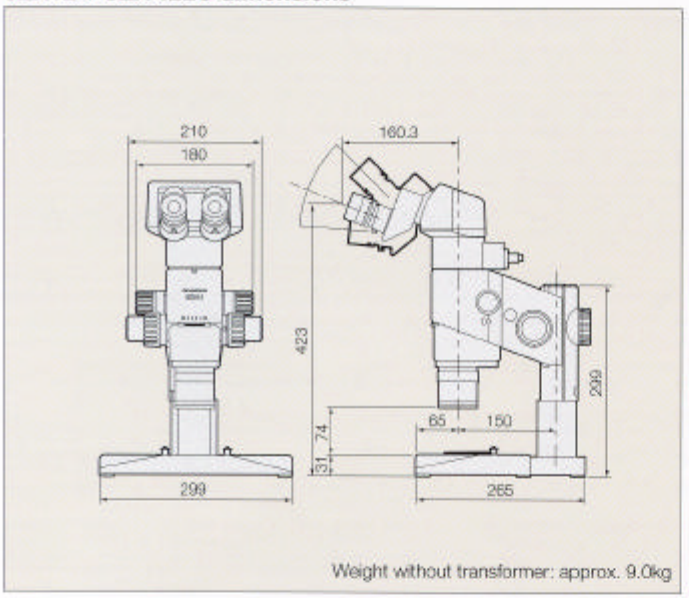

Weight: approx. 7.4kg

## SZX9 + SZX-ST dimensions



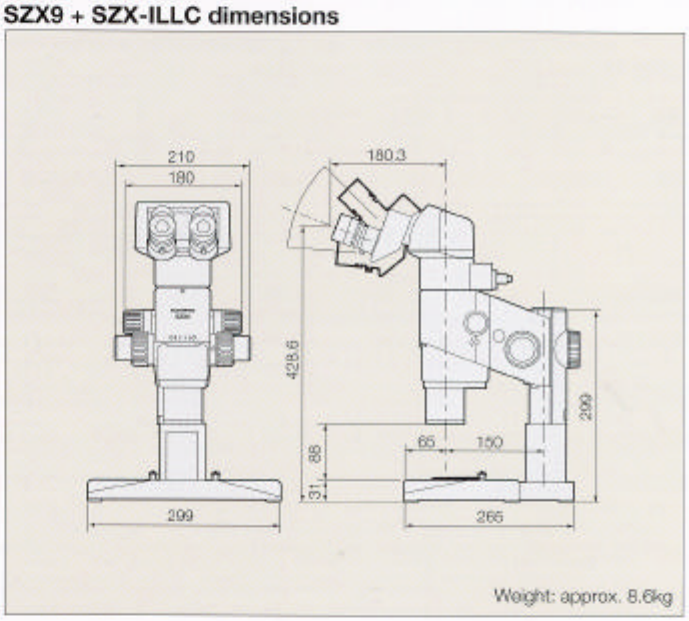

Weight: approx. 7.0kg

## SZX12 + SZX-ILLC dimensions



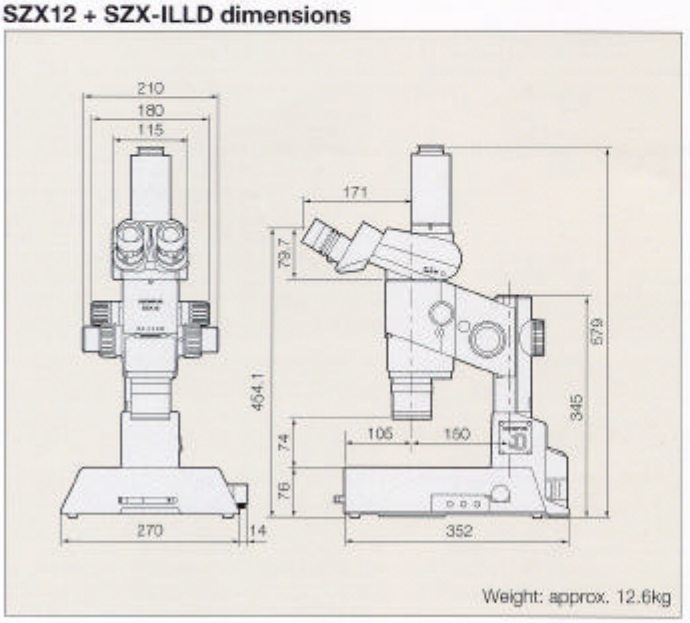

Weight without transformer: approx. 9.0kg

## SZX9 + SZX-ILLC dimensions



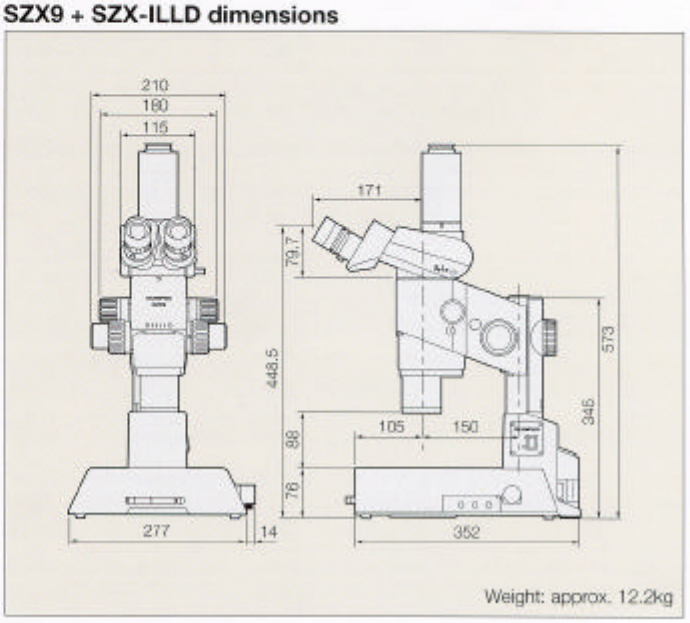

Weight: approx. 8.6kg

## SZX12 + SZX-ILLD dimensions



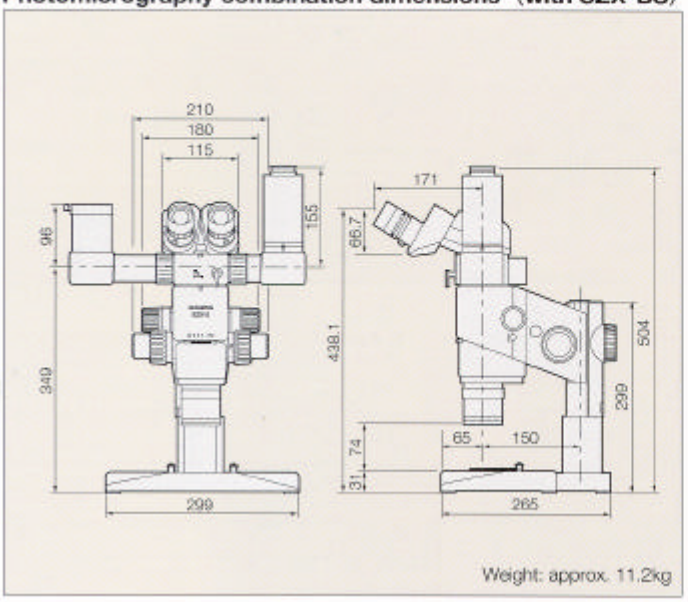

Weight: approx. 12.6kg

## SZX9 + SZX-ILLD dimensions



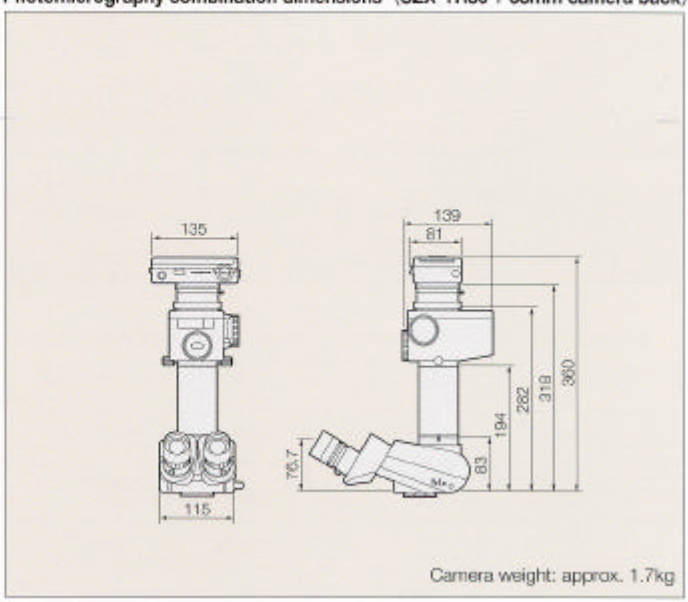

Weight: approx. 12.2kg

## Photomicrography combination dimensions (with SZX-BS)



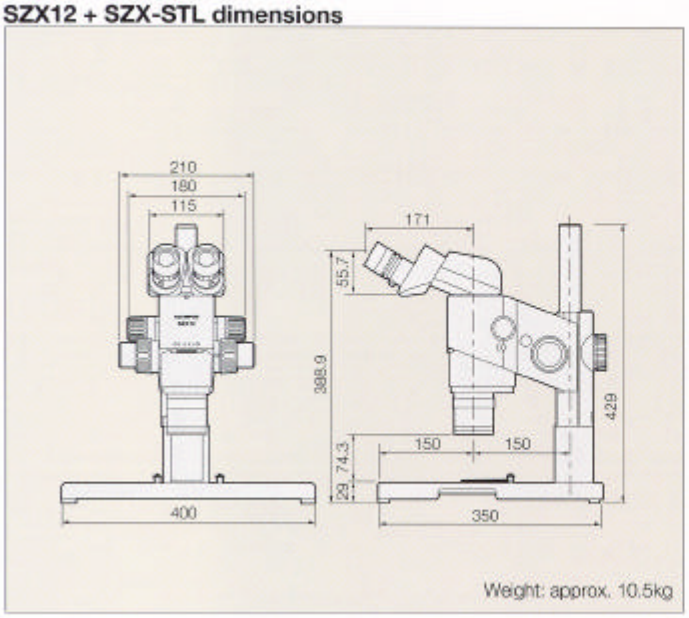

Weight: approx. 11.2kg

## Photomicrography combination dimensions (SZX-TR30 + 35mm camera back)



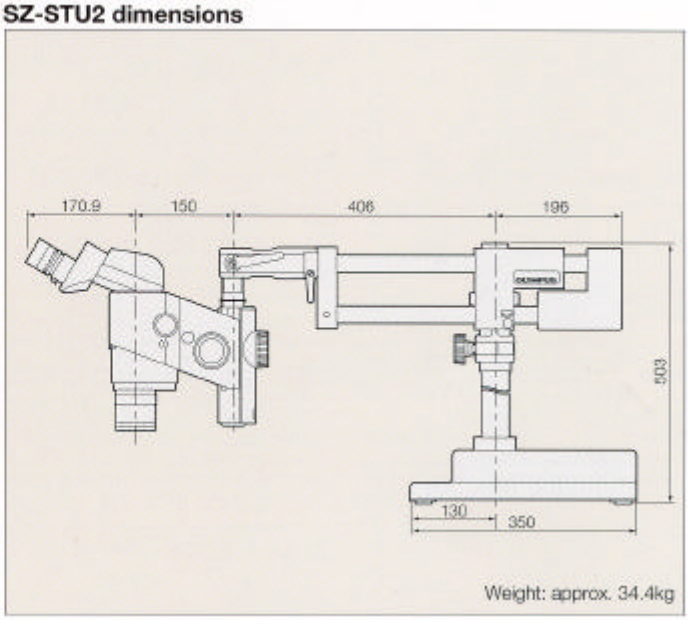

Camera weight: approx. 1.7kg

## SZX12 + SZX-STL dimensions



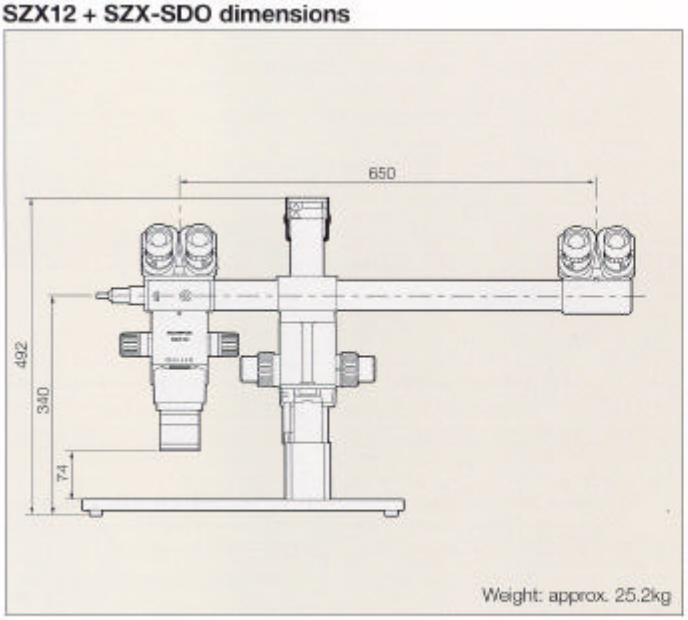

Weight: approx. 10.5kg

## SZ-STU2 dimensions



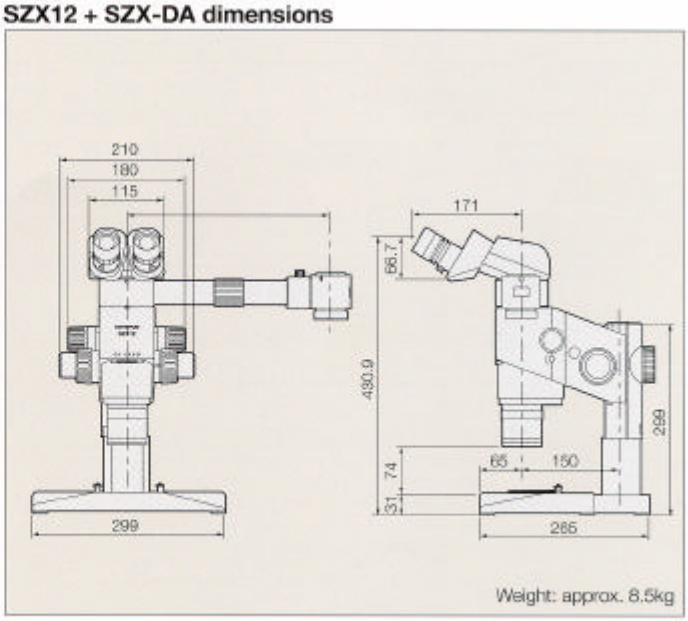

Weight: approx. 34.4kg

## SZX12 + SZX-SDO dimensions




Weight: approx. 25.2kg

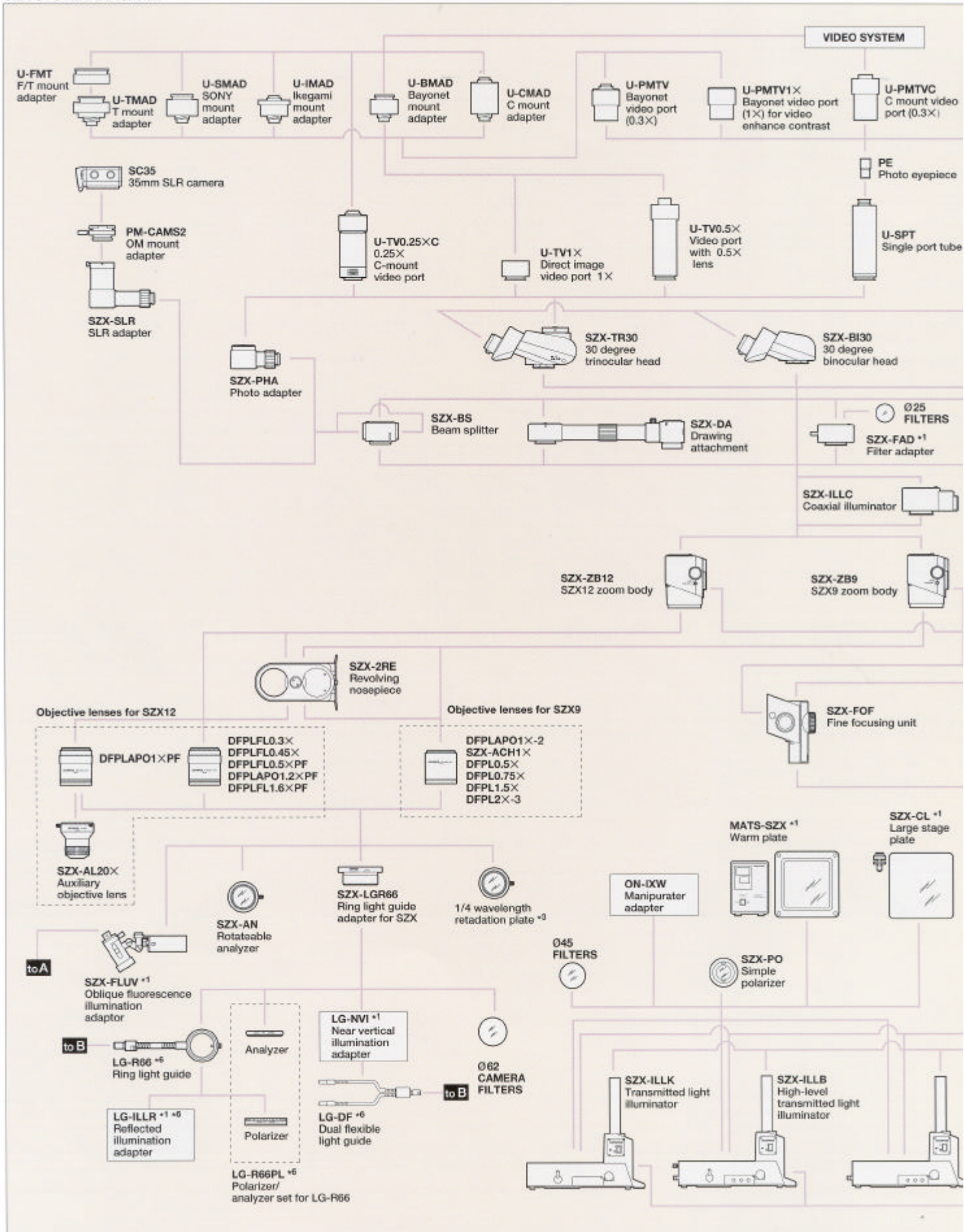
## SZX12 + SZX-DA dimensions



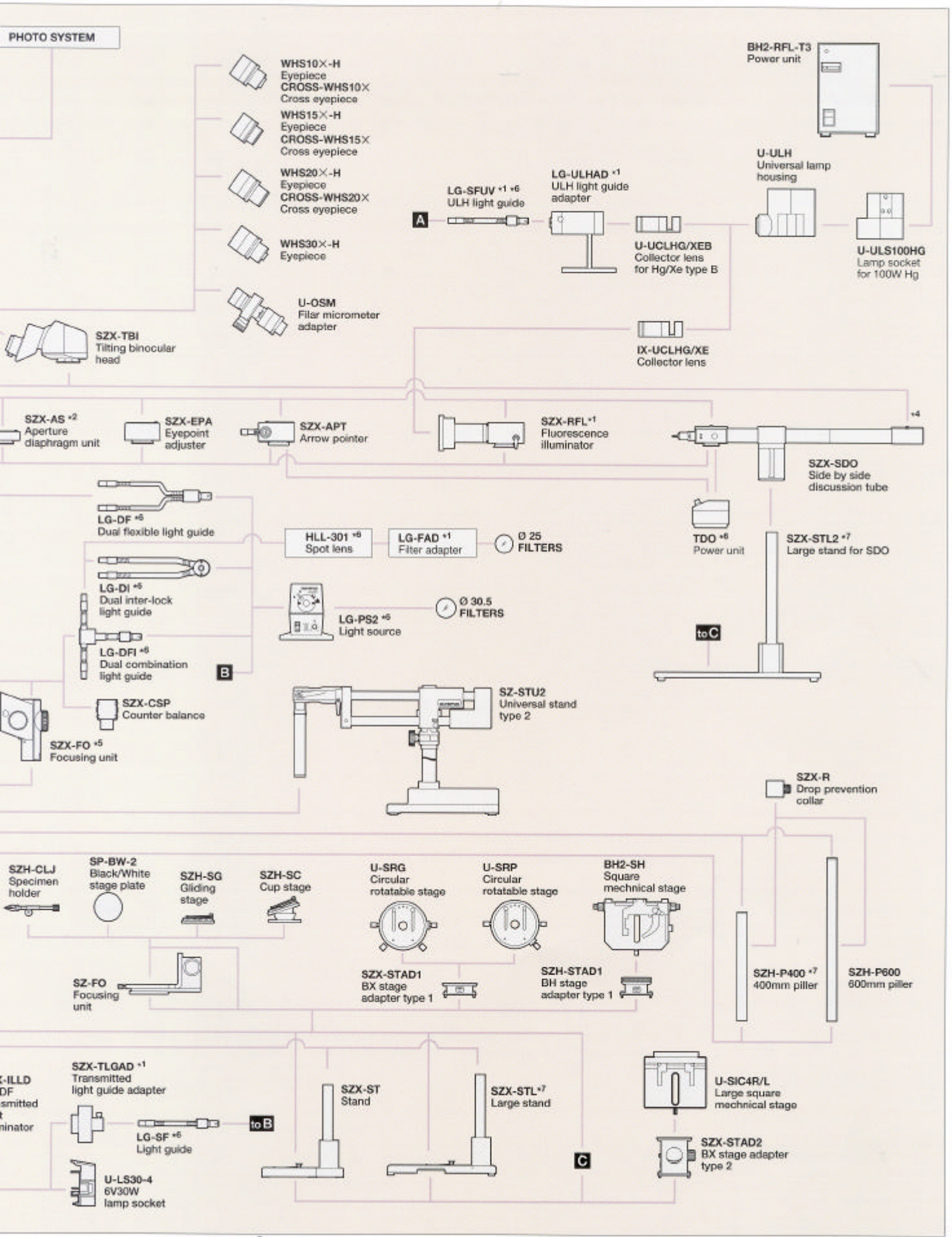

Weight: approx. 8.5kg

Unit: mm

## SZX SYSTEM DIAGRAM




*1 To be released in March, 1998 *2 Exclusive for the SZX-ZB9 *3 Incorporated in SZX-ILLC *4 Cannot be attached with SZX-TR30 *5 Cannot be used with SZX-SDO *6 Different types of light

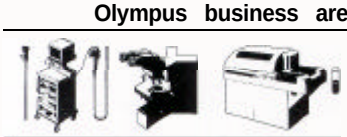



rces and light guides may be offered in each area. *7 SZH-P400 is the standard feature of SZX-STL and SZX-STL2.

Web site addresses: http://www.olympus.co.jp
http://www,olympus,com
http://www.olympus-europa.com

Specifications are sublect to change wthout any obllgatlon on the part of the manufacture1

**Olympus business areas**


Medical and health-care area


Imaging and information area


Industrial applications area

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