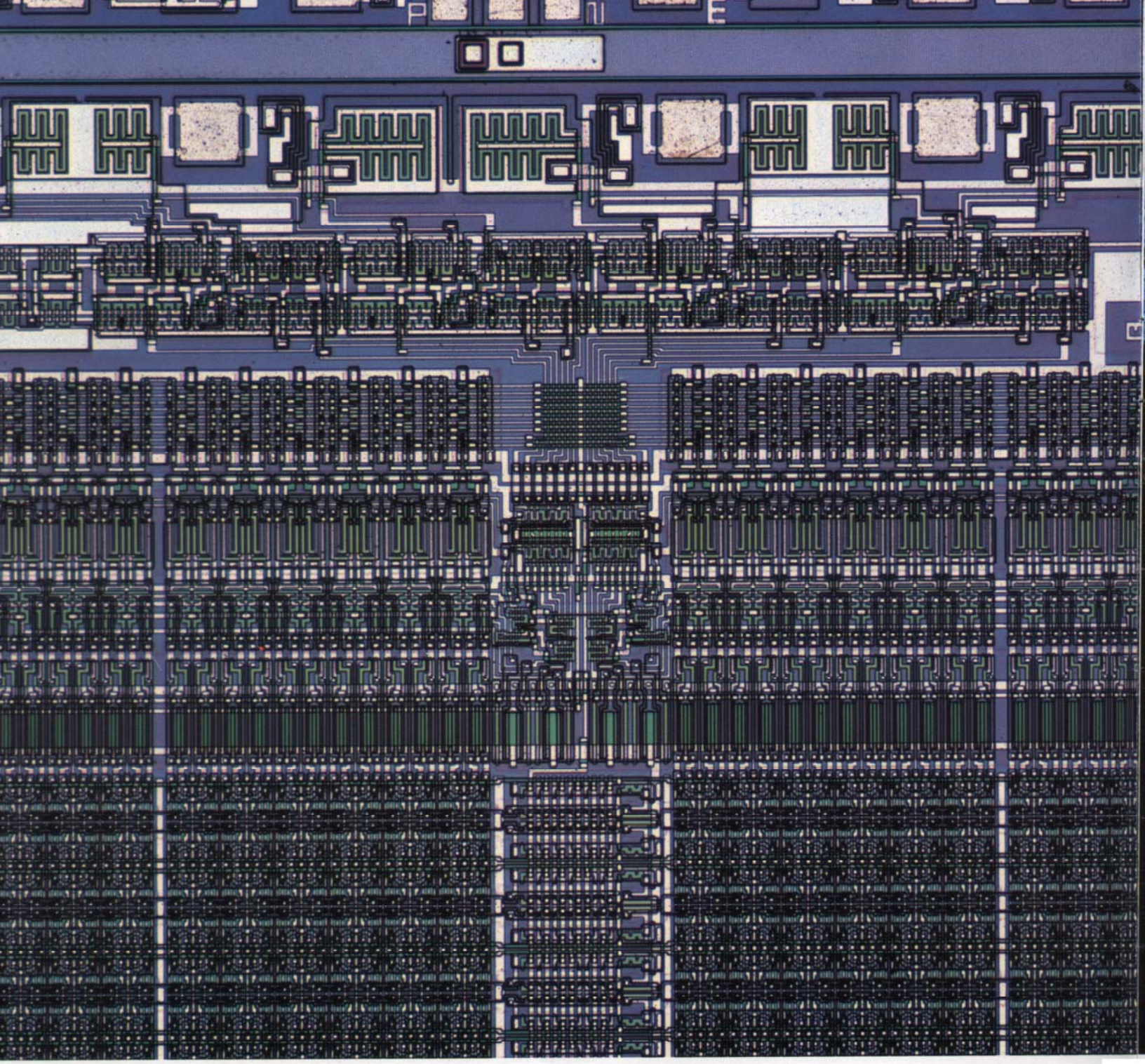
OLYMPUS®

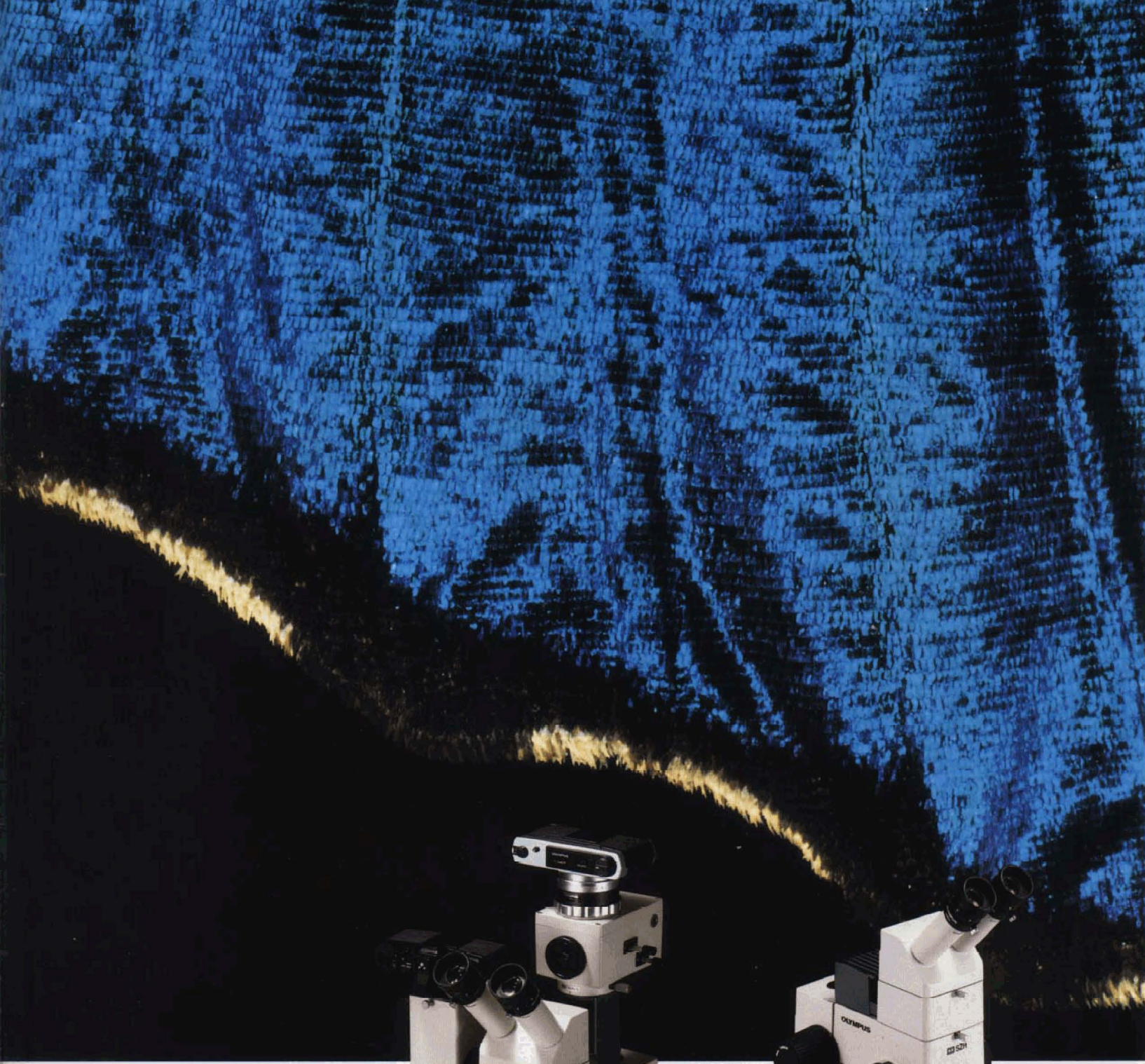
SZH

Zoom Stereo Microscope System



New Technology and New Design Concept for State-of-the-Art Investigation

In response to the ever-increasing demand for precision stereo microscopes in such key technological fields as the Integrated Circuit and Biotechnology industries, Olympus has developed the SZH stereo microscope. This is a high-performance, multi-function microscope that offers the superior level of sophistication and versatility necessary for advanced research and development. The SZH stereo microscope provides clear, distortion-free images throughout a full 8.5:1 zoom range. A complete line of accessories based on the SZH's unique building-block design are also available, including a series of outstanding transmitted light illuminators which deliver light intensities many magnitudes brighter than those offered by conventional models. All of these superb characteristics contribute to the creation of a comprehensive microscope system that assures high-precision performance for inspection and processing during observation with a microscope.



Bright, Clear Images and Easy Operation Make the SZH an Important Contribution to Stereo Microscope Design

Eyepieces
The SZH stereo microscope is supplied with GWH 10X eyepieces as standard equipment. These high-quality optics feature a large field number of 24 and a diopter lock mechanism for each eyepiece.

Binocular Tube
The binocular tube of the SZH is inclined 45° and facilitates focusing for photomicrography, as well as stereo microscope observation.

Focusing
A built-in balance system assures smooth and easy focusing even with attached photographic equipment.

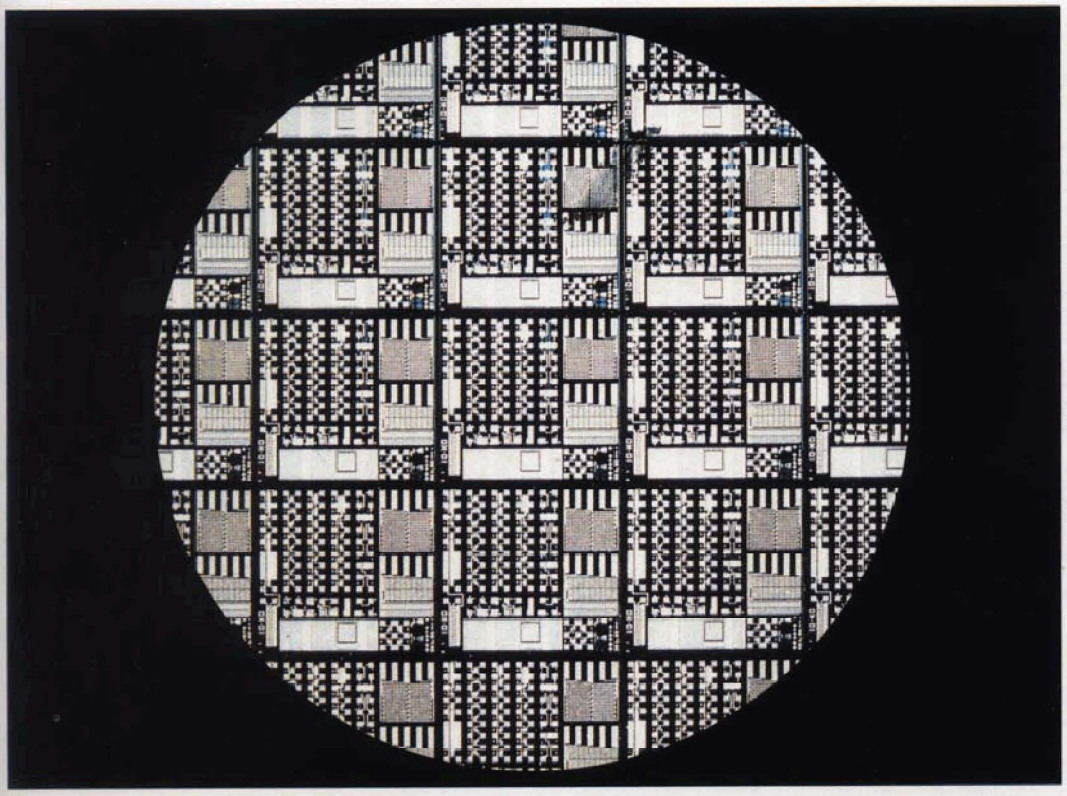
Zoom Magnification Adjustment Knobs
Mounted on both sides of the body for convenient operation, the zoom magnification knobs permit continuous adjustment of the image magnification and easy reading of the magnification values.

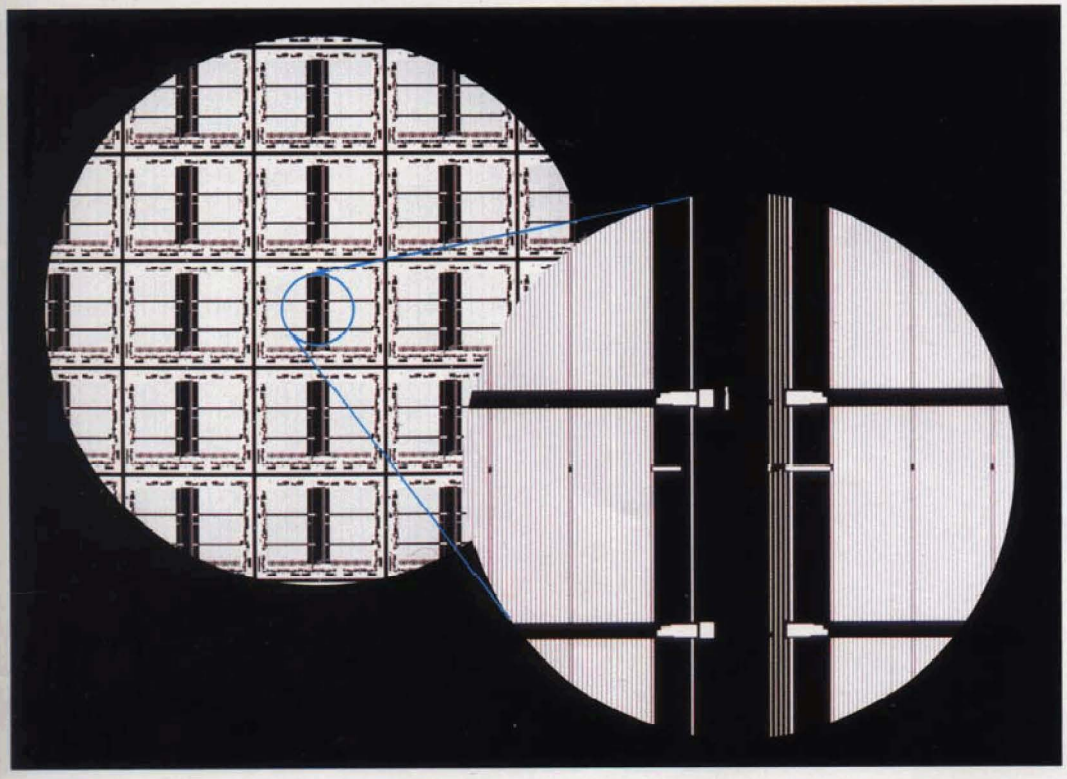
Microscope Stand
An exceptionally large 300(W)×260mm(D) base ensures greater stability and improved operability, while also accommodating a wide range of stages. Olympus also offers an extra-large stand, the SZH-STL, which provides a 400(W)×350mm(D) base.

Built-In Double Aperture Iris Diaphragm
A double aperture iris diaphragm is provided on the SZH to adjust contrast and image brightness. This feature is also used during photography for controlling the depth of field.

Drop Prevention Collar
While protecting both specimens and microscope from unexpected mishaps, the drop prevention collar also doubles as an adapter for attaching the LSGA incident light illuminator.

SZH-111





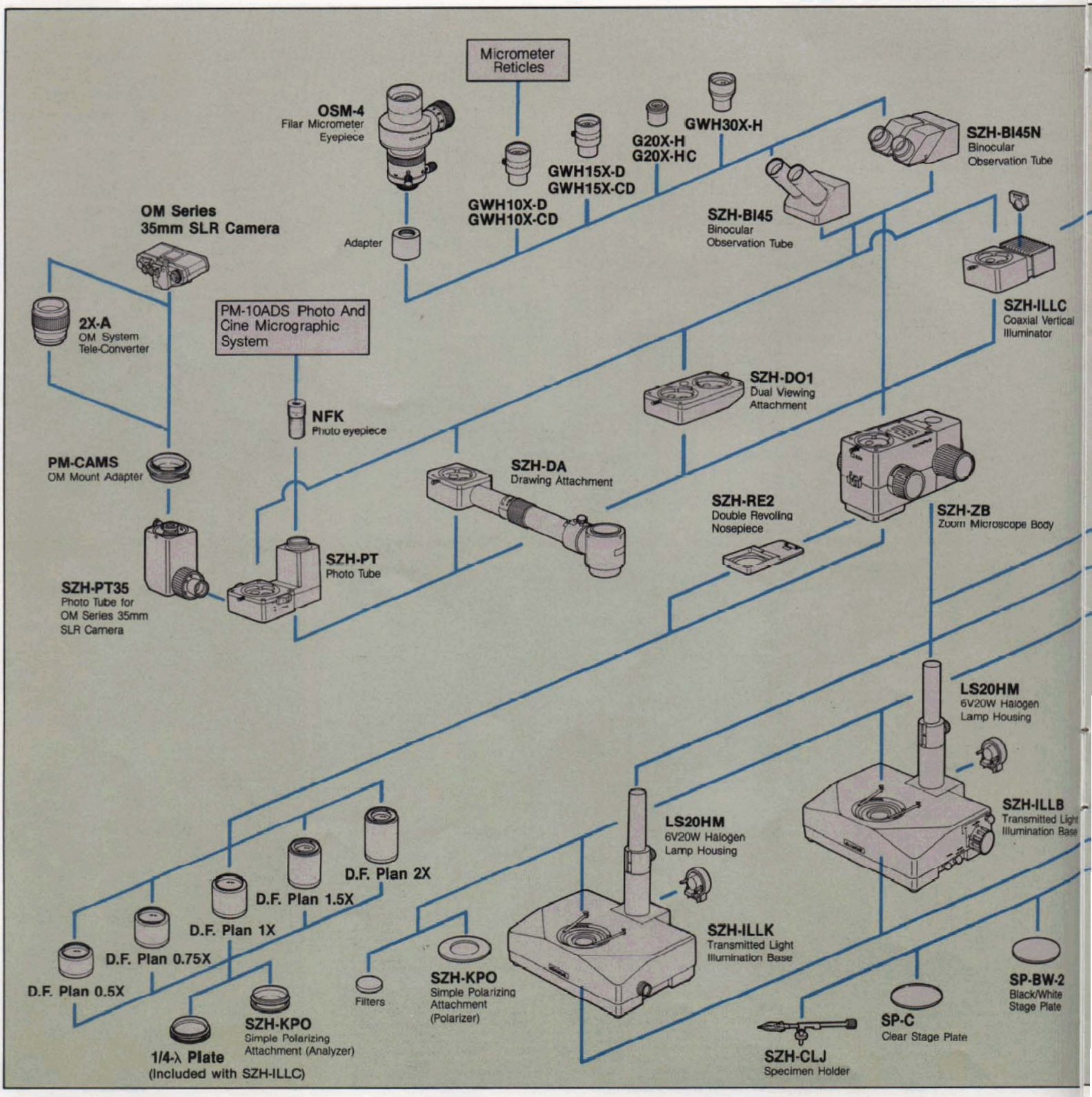
Distortion-Free Objectives

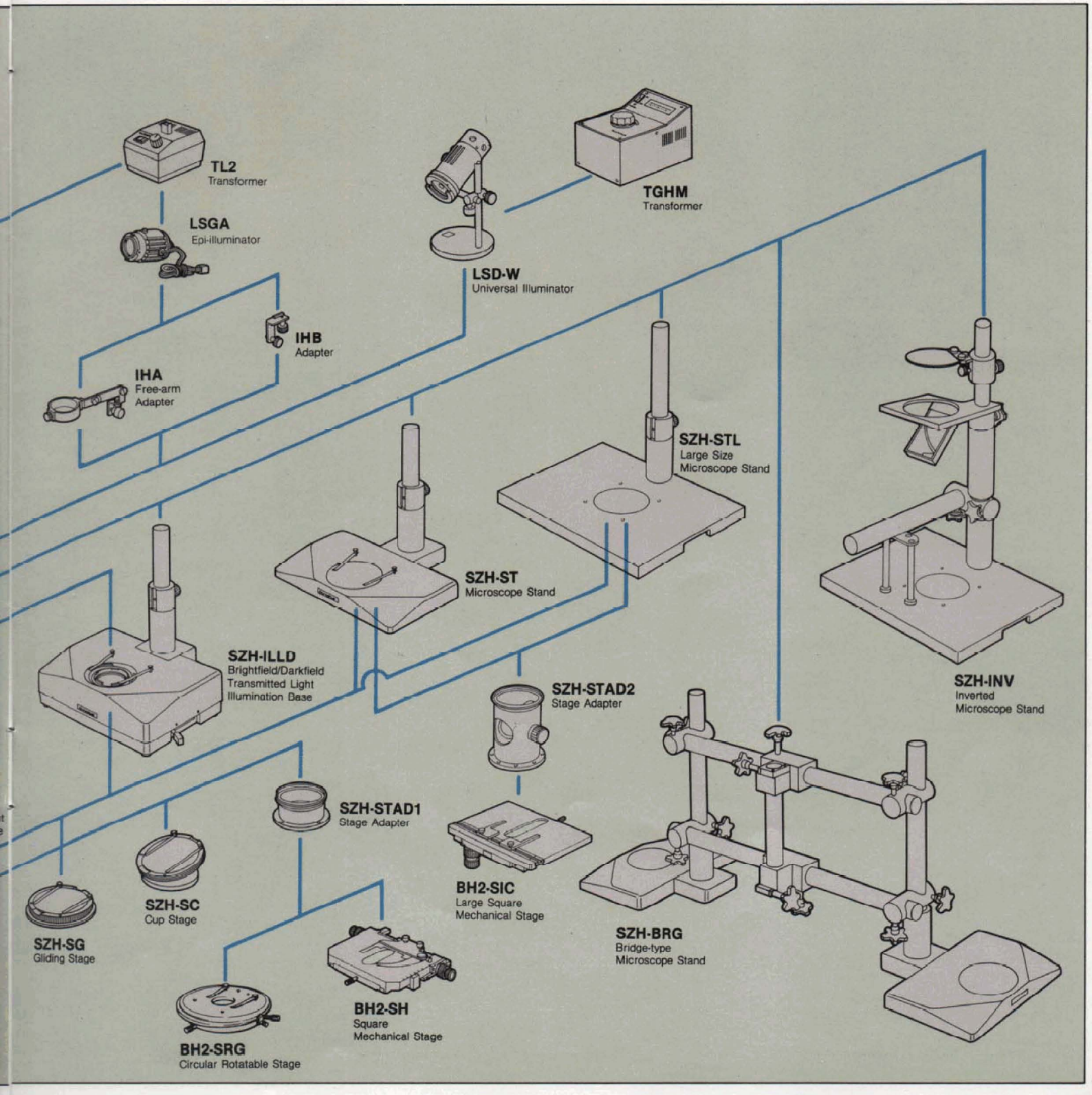
The Olympus SZH stereo microscope offers five different distortion-free objectives, each formulated to fully correct for the distortions common in conventional stereo microscopes. These high-quality objectives therefore not only deliver images without barrel or pillow distortion, but they also completely eliminate spherical aberration, chromatic aberration, field curvature and other aberrations. As a result, the image is of highest quality all the way to the periphery of the visual field. Moreover, because the SZH is supplied with objectives in magnifications of 0.5X, 0.75X, 1X, 1.5X and 2X, there is no need for auxiliary lenses.

Large Zoom Range

The SZH offers a large zoom range because of its 8.5:1 ratio, for continuous coverage of magnifications from 7.5X to 64X, when using a 1X objective with 10X eyepieces. By appropriately combining the various available objectives with 10X, 15X, 20X or 30X eyepieces, the magnification range can be expanded to cover an extremely wide 3.75X to 384X range.

A Wide Array of System Modules Based on the Building-Block Design Concept



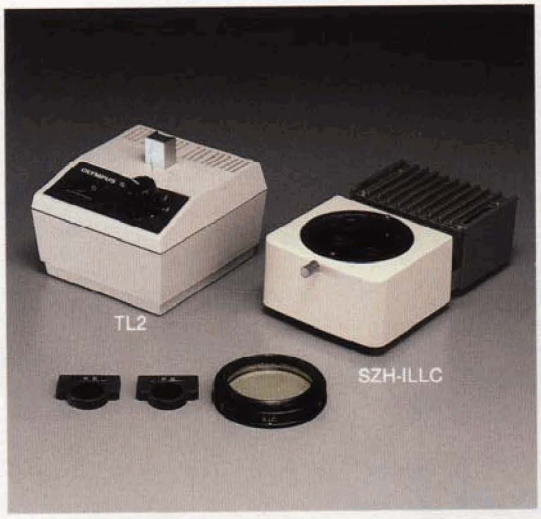

TL2
Transformer
LSGA
Epi-illuminator
IHB
Adapter
IHA
Free-arm
Adapter
LSD-W
Universal Illuminator
TGHM
Transformer
SZH-STL
Large Size
Microscope Stand
SZH-ST
Microscope Stand
SZH-INV
Inverted
Microscope Stand
SZH-ILLD
Brightfield/Darkfield
Transmitted Light
Illumination Base
SZH-STAD2
Stage Adapter
SZH-STAD1
Stage Adapter
SZH-SC
Cup Stage
SZH-SG
Gliding Stage
BH2-SIC
Large Square
Mechanical Stage
SZH-BRG
Bridge-type
Microscope Stand
BH2-SH
Square
Mechanical Stage
BH2-SRG
Circular Rotatable Stage

Various Illuminators to Meet Diverse Research Needs

SZH-ILLC Coaxial Vertical Illuminator

- The SZH-ILLC coaxial vertical illuminator facilitates the observation of integrated circuits, liquid crystal patterns, scratches on metal surfaces and other objects that are difficult to observe under oblique incident-light illumination.
- Combining the polarizer incorporated in the illuminator with a 1/4-λ plate results in flare-free images with improved contrast.
- Birefringent materials, such as minerals and liquid crystals, can be observed in simple polarized light.
- Intermediate magnification is 1.25X.

The light source for the SZH-ILLC coaxial vertical illuminator is a 6V, 20W halogen bulb. Filters can be inserted when necessary.

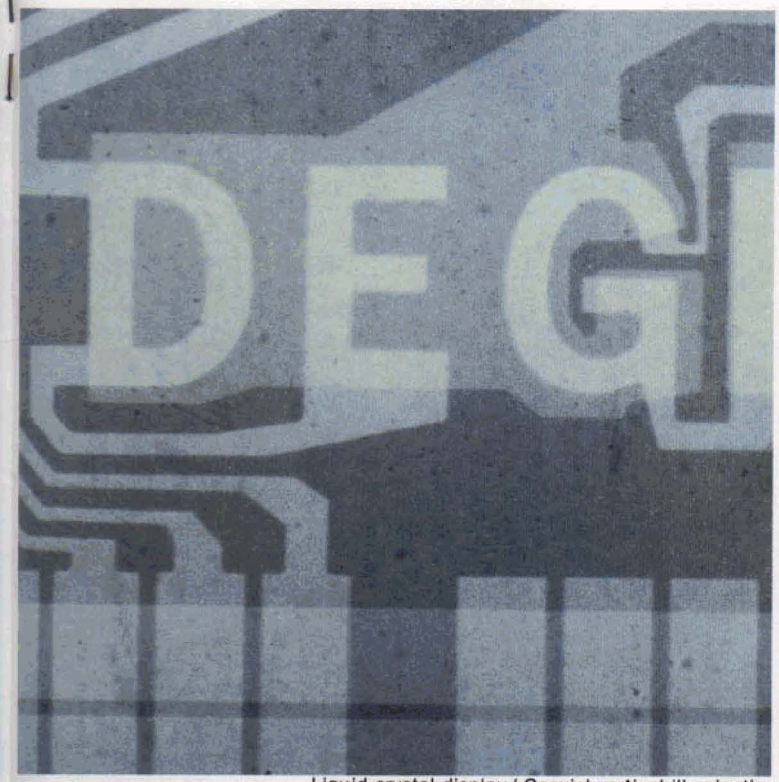


LSGA Epi-Illuminator

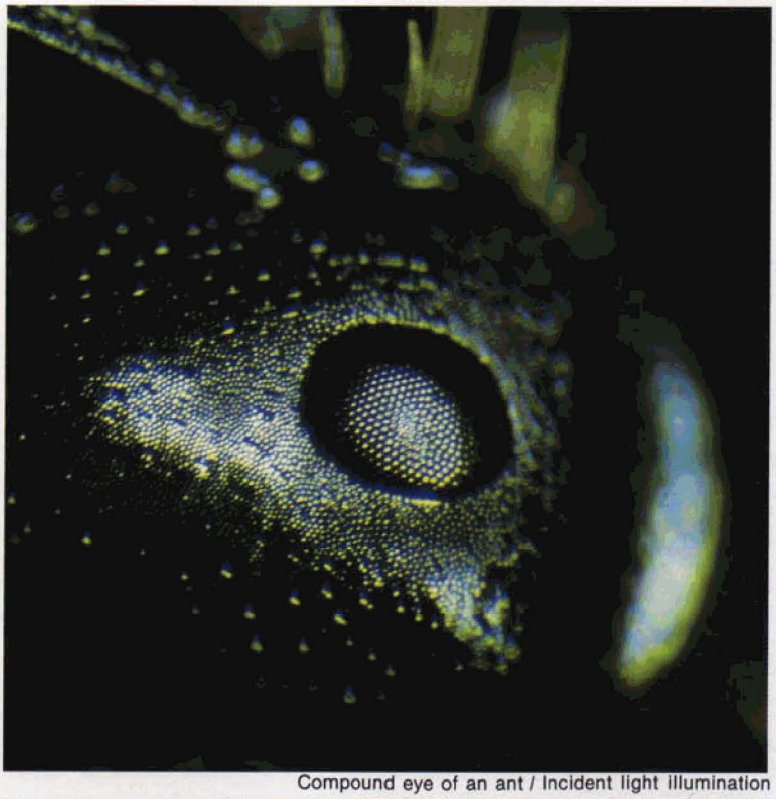
- Suitable for most types of specimens, the LSGA Epi-illuminator provides extremely bright illumination in spite of its small size. The LSGA employs a 6V, 15W halogen bulb that produces 20,000 lux of illumination at a distance of 100mm.
- The LSGA can be conveniently attached to the microscope body using an IHB mounting arm.
- A 32.5mm diameter filter can be used with the LSGA.
- When mounted to the TL2 transformer with the IHA free-arm, the LSGA serves as an independent light source.

LSD-W Universal Illuminator

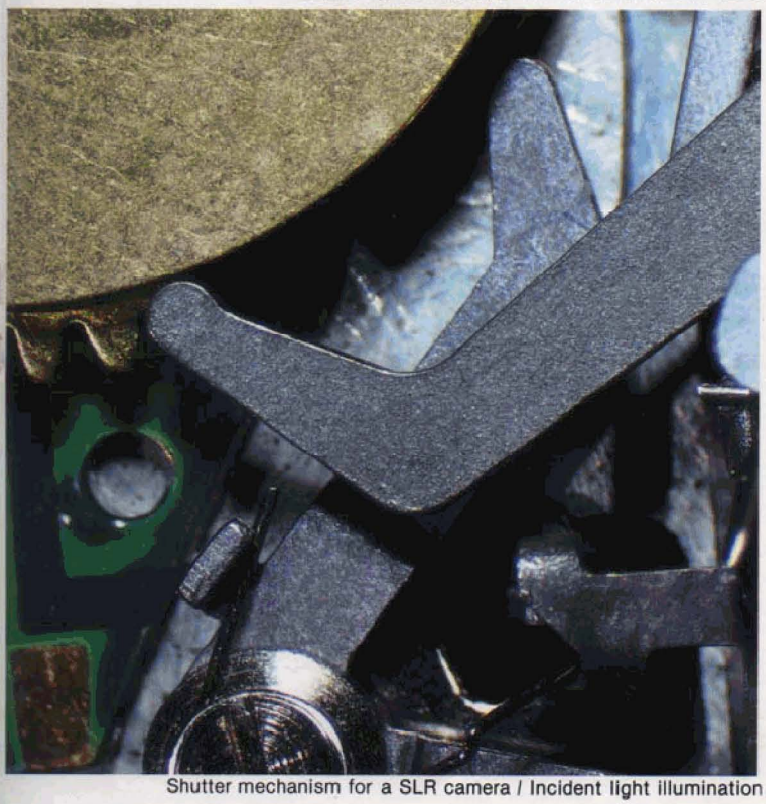
- The LSD-W universal illuminator is ideal for those situations requiring especially bright illumination. Either parallel luminous flux or convergent luminous flux may be selected.
- A 6V, 30W bulb provides bright, even illumination. The TGHM transformer is used for LSD-W.



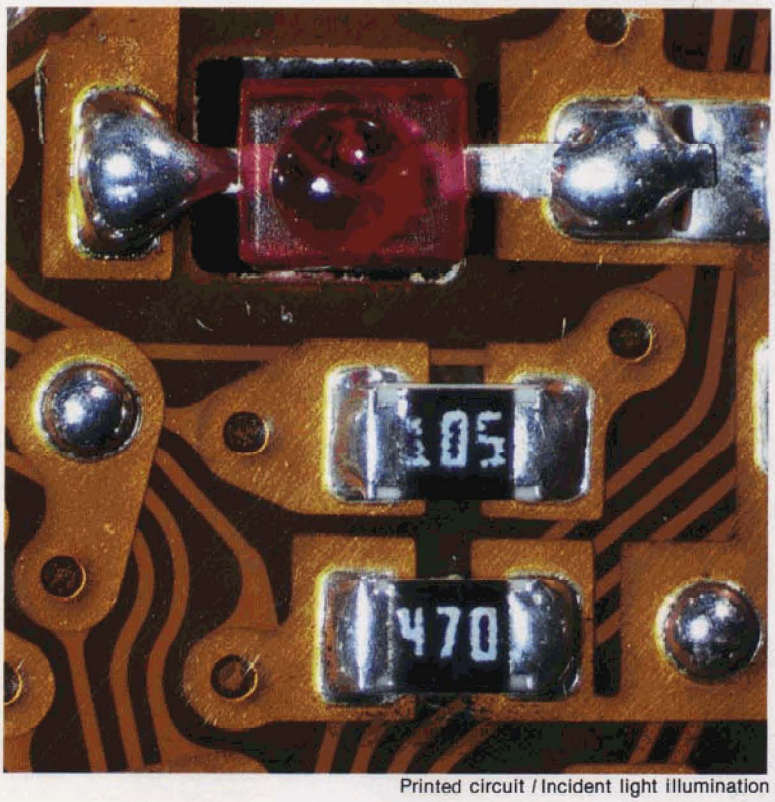
Liquid crystal display / Coaxial vertical illumination



Compound eye of an ant / Incident light illumination



Shutter mechanism for a SLR camera / Incident light illumination



Printed circuit / Incident light illumination

SZH-ILLB Transmitted Light Illumination Base

- A newly-developed optical system provides illumination many magnitudes brighter than that of conventional illuminators, while keeping the specimen temperature at acceptable levels.
- Special illumination techniques such as high contrast, low contrast and oblique illumination are possible. Changeover from one technique to another is a simple one-touch operation.
- For compactness, a transformer has been incorporated into the SZH-ILLB. An auxiliary output transformer, also built-in, allows for simultaneous use of a reflected light illuminator.
- The base accommodates a simple polarizing filter as well as other types of filters.
- The water-repellent base is unaffected by accidental spills or occasional exposure to moisture.
- The SZH-ILLB transmitted light illumination base utilizes a 6V, 20W pre-centered halogen bulb.

SZH-ILLK Simple Transmitted Light Illumination Base

- This base is equipped with a 6V, 20W pre-centered halogen bulb that delivers the same extra-bright illumination as provided in the SZH-ILLB.
- The SZH-ILLK base also permits oblique illumination and accepts polarizing and other types of filters.
- Extra durability is ensured by the water-repellent design of the SZH-ILLK.

SZH-ILLD Brightfield/Darkfield Transmitted Light Illumination Base

The SZH-ILLD allows darkfield as well as brightfield observation. Darkfield illumination faithfully reproduces the actual shape of the specimen with heightened contrast and is highly effective in detecting striae and scratches in translucent object such as jewels and glass, as well as for observing plankton in solution.

- A simple polarizing filter may be used with the SZH-ILLD illuminator.
- A 12V, 50W pre-centered halogen bulb is used as the light source.
- Extra durability is ensured by the water-repellent design of the SZH-ILLD.


SZH-ILLB


SZH-131


SZH-ILLK


SZH-121


SZH-ILLD


SZH-141

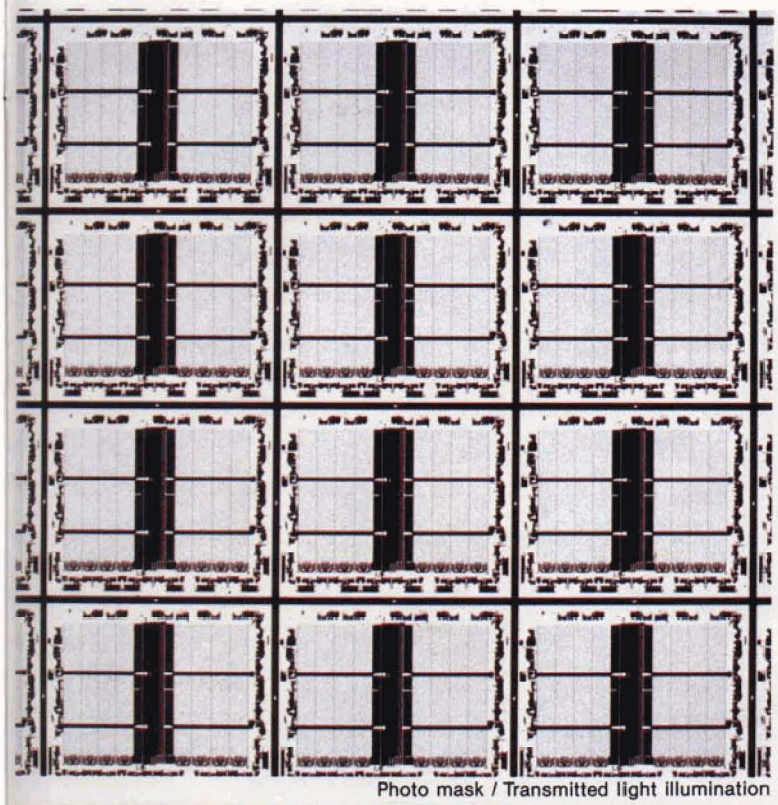
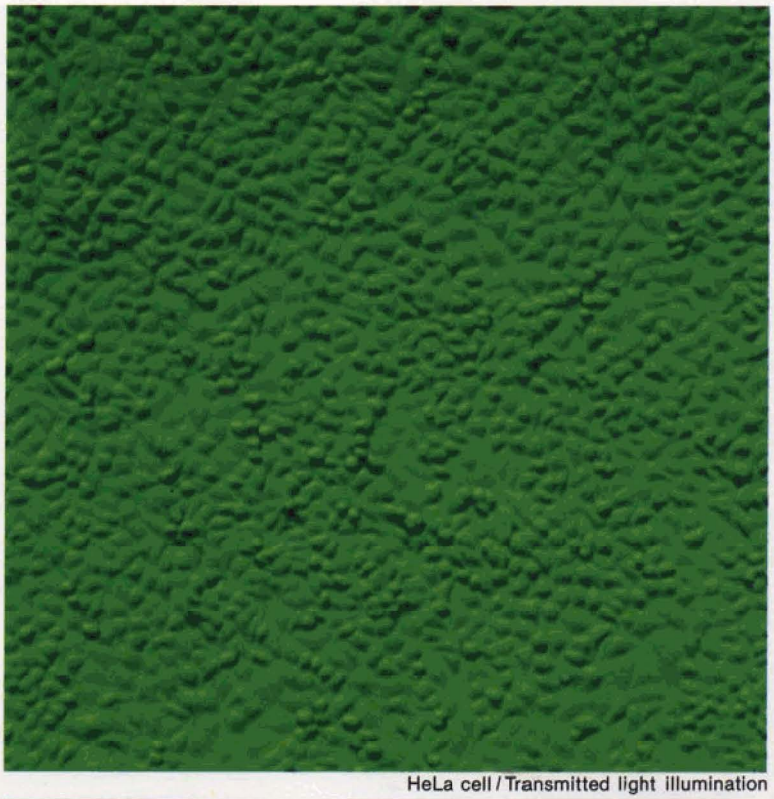
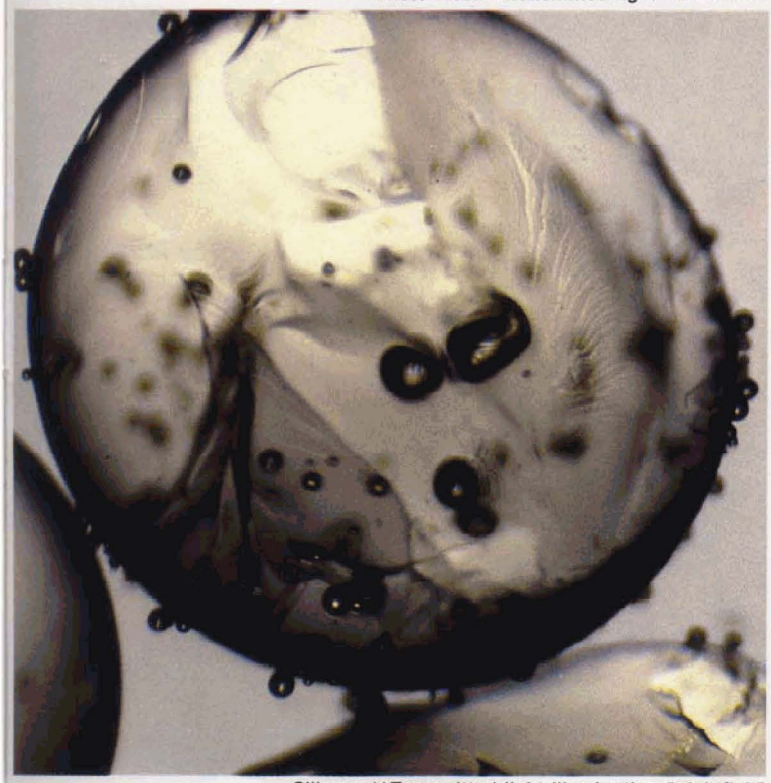


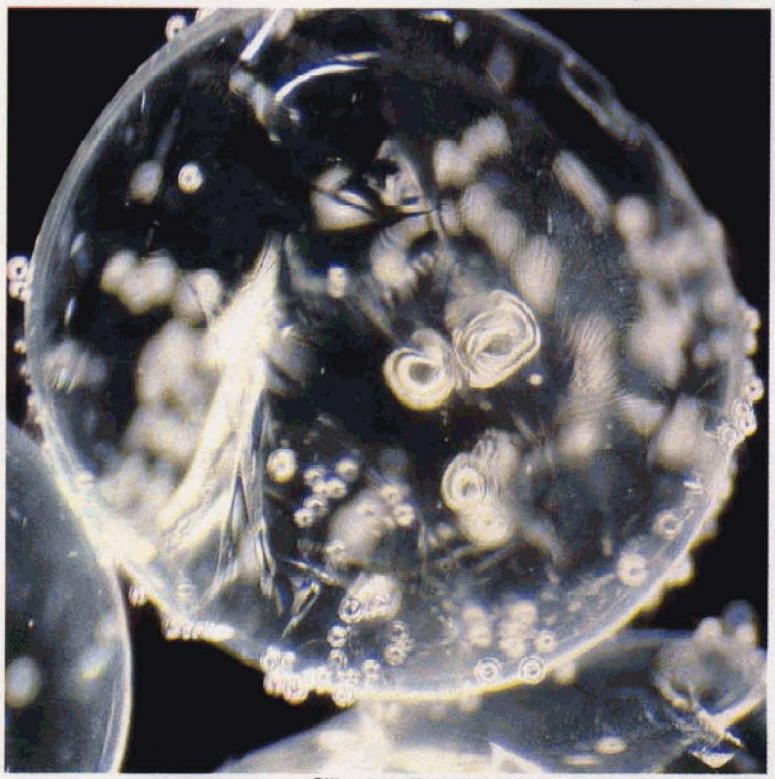
Photo mask / Transmitted light illumination



HeLa cell / Transmitted light illumination



Silica gel / Transmitted light illumination (brightfield)



Silica gel / Transmitted light illumination (darkfield)

Photomicrography System to Meet a Wide Range of Documentation Needs

SZH-PT Photo Tube

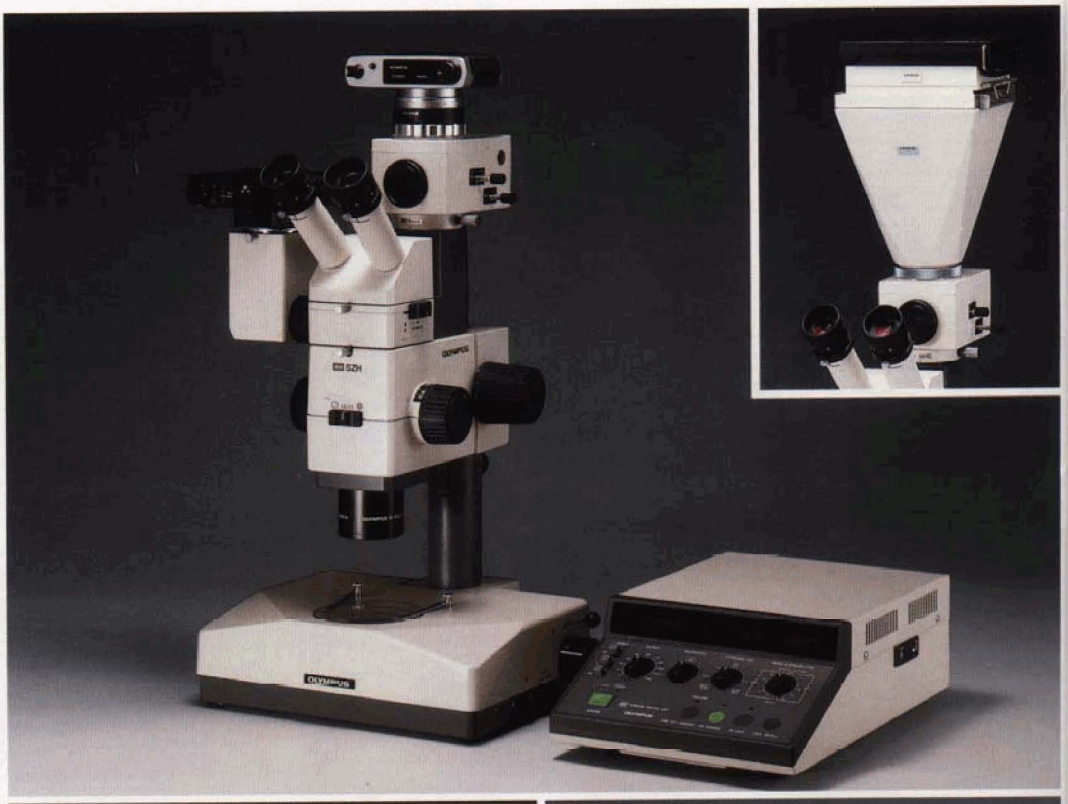
- Both PM series photomicrographic equipment and OM series 35mm SLR cameras may be attached simultaneously to the SZH-PT photo tube.
- A built-in light path selector permits selection between two optical paths—either 100% observation or 20% observation coupled with 80% photography. Parfocality is maintained for both the observation and photography systems to permit focusing through the eyepieces.

SZH-PT35 Photo Tube for OM Series 35mm SLR Camera

- When used in combination with the SZH-PT photo tube, this handy attachment accepts an Olympus OM Series 35mm SLR camera with a PM-CAMS OM mount adapter. The entire observation range can be photographed at the same magnification, with the resultant photos showing the entire circular field of view. A 2X teleconverter permits full-frame photography.

PM-10AD/PM-10ADS Fully Automatic Photomicrographic Equipment

- Olympus offers tow types of fully automatic photomicrographic equipment—the PM-10AD, and the PM-10ADS with spot-metering capability. Both accommodate large-format cameras for 4″×5″ sheet film or 3 1/3×4 1/4″ Polaroid® film, as well as 35mm film.



SZH-PT

SZH-PT35 with the PM-CAMS

OM Series SLR Camera

PM-10ADS

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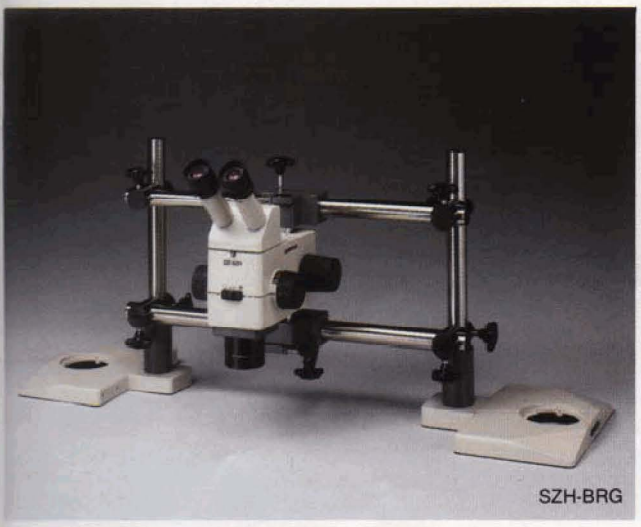
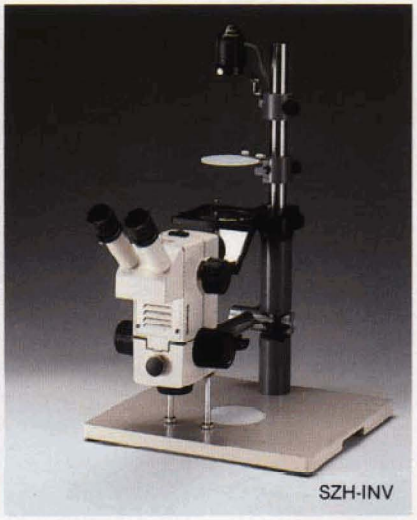
A Wide Selection of Accessories to Expand the Range of Applications





SZH-SC Cup Stage

- The SZH-SC cup stage facilitates specimen positioning and can be freely adjusted to any desired angle.

SZH-SG Gliding Stage

- The SZH-SG gliding stage permits free and smooth specimen manipulation on a horizontal plane over a 40mm range.
- The SZH-SG is also useful for observation in transmitted light.

SZH-STAD1 Stage Adapter

- Permits the BH2-SRG circular rotating stage and the BH2-SH mechanical stage to be attached to the base section of the SZH.
- The SZH-STAD1 adapter can be used for both reflected and transmitted light observation; A simple transmitted light polarizing filter may be attached to the adapter.
- Use of the SZH-STAD1 stage adapter places the surface of the stage only 44mm above table-top level.

SZH-STAD2 Stage Adapter

- The SZH-STAD2 stage adapter connects the BH2-SIC large 4″×4″ mechanical stage to the SZH-ST and SZH-STL microscope stands.
- Although the SZH-STAD2 is not designed for use with the transmitted light illumination bases, simple transmitted light illumination can be provided by an external illuminator.
- When the adapter is used, the surface of the stage is approximately 125mm above table-top level.

SZH-BRG Bridge-Type Microscope Stand

- The SZH-BRG bridge-type stand is designed to handle specimens too large to be placed on standard or large stands. Because the SZH-BRG also permits horizontal movement of the microscope body up to 400mm, several specimens can be placed side-by-side and viewed in sequence for faster, easier investigation.

SZH-INV Inverted Microscope Stand

- The SZH-INV inverted stand permits cell cultures to be observed through the bottoms of flasks and petri dishes, making the base indispensable for biotechnology.

SZH-DO1 Dual-Viewing Attachment

- The SZH-DO1 dual-viewing attachment permits two observers to simultaneously view the same specimen. Although the image direction is reversed for the second observer, image magnification, brightness, and eyepoint level are identical for both.

SZH-BI45N

- The eye-point of the SZH-BI45N is set 53mm lower than the SZH-BI45 to enable observation with greater comfort and ease—even when using attachments such as the SZH-PT, SZH-DA, SZH-DO1 or SZH-ILLIC.

SZH-RE2 Double Revolving Nosepiece

- This simple attachment permits two objectives to be attached to the microscope and offers selection between the two by means of a simple one-touch operation.
- With the SZH-RE2 double nosepiece, the objective not in use is positioned under the microscope body where it cannot interfere with observation or manipulation.

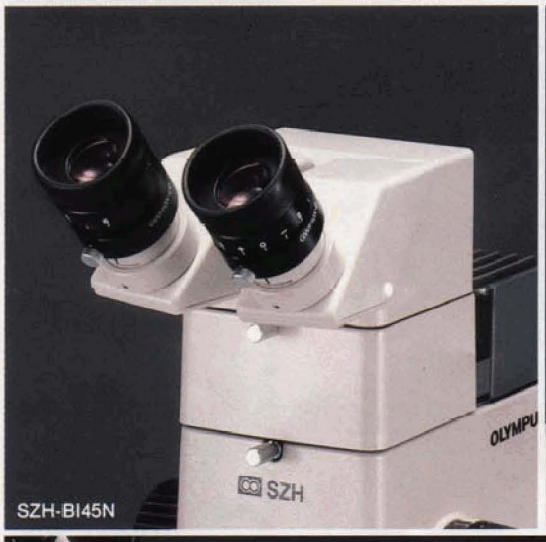
SZH-DA Drawing Attachment

- The SZH-DA drawing attachment facilitates the tracing of specimen images—often required in research and study—and can be mounted on either side of the microscope body.
- The unique design of the SZH-DA drawing attachment ensures that specimen image and drawn image register precisely, permitting sketching even in brightly lit rooms.

SZH-KPO Simple Polarizing Attachment

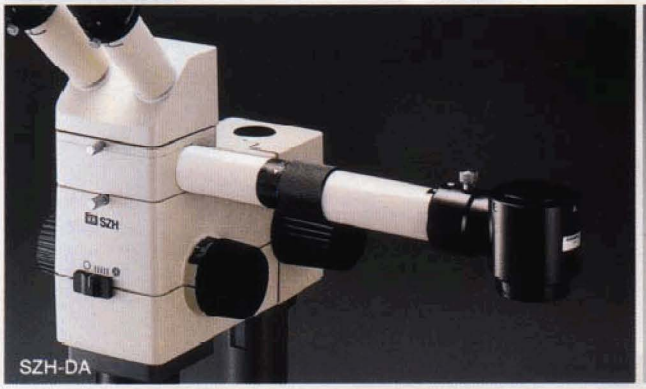
- This attachment facilitates transmitted light polarization, permitting detection of birefringent materials under crossed filters.
- The polarizer used in this system is attached to the transmitted light illumination base, while the analyzer is attached to the objective.


SZH-DO1



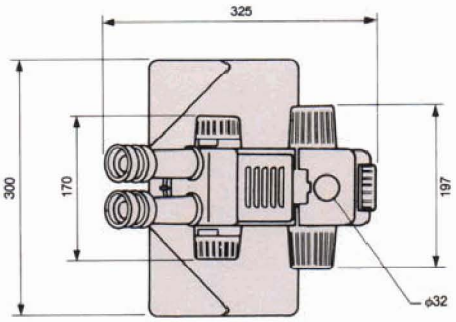
SZH-BI45N

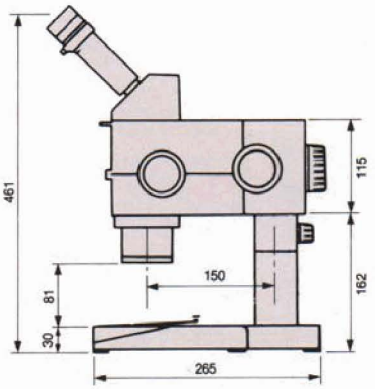

SZH-RE2



SZH-DA


SZH-KPO





Standard Outfits/Specification

Module			SZH-111	SZH-121	SZH-131	SZH-141	SZH-151
Zoom Microscope body	SZH-ZB	Zoom ratio 8.5:1. Focusing range 50mm, with counter balance system. Built-in double aperture iris diaphragm.	○	○	○	○	○
Observation Tube	SZH-BI45	Binocular, inclined 45°, interpupillary distance adjustment 50—76mm.	○	○	○	○	○
Objective	D.F. Plan 1X	Distortion-free plan 1X: N.A. 0.084, W.D. 81mm.	○	○	○	○	○
Eyepiece	GWH10X-D	Widefield, high eyepoint, F.N. 24, diopter lock mechanism.	○	○	○	○	○
	GWH10X-CD	Widefield, high eyepoint, F.N. 24, diopter lock mechanism. Built-in double cross line	○	○	○	○	○
Standard Base	SZH-ST	Dimentions: 300(W)×260(D)×30mm(H). Pillar height 250mm.	○				○
Stage Plate	SP-BW-2	Black/White	○				○
	SP-C	Transparent		○	○	○	
Transmitted Light Illumination Base	SZH-ILLK	Illumination mode: brightfield and oblique illumination. Illuminatling area: 40mmφ. 6V20W halogen bulb.		○			
Transmitted Light Illumination Base	SZH-ILLB	Illuminating mode: high contrast, low contrast and oblique illumination. Illuminating area 40mmφ. 6V20W halogen bulb. Built-in filter slider. 6V20W max. auxiliary output.			○		
Brightfield/Darkfield Transmitted Light Illumination Base	SZH-ILLD	Illuminating mode: brighfield and darkfield. 12V50W halogen bulb. 6V20W max. auxiliary output. Illuminating area 34mmφ.				○	
Bulb Socket	LS20HM	For SZH-ILLK and SZH-ILLB.		○	○		
Power Cord	UYCP			○	○	○	
Coaxial Vertical Illuminator	SZH-ILLC	Magnification factor 1.25X. 6V20W halogen bulb.					○
Transformer	TL2						○
6V20W Halogen Bulb	6V20WHAL	For SZH-ILLK, -ILLB, -ILLC. (2pcs.)		○	○		○
12V50W Halogen Bulb	JC12V50WHAL-L	For SZH-ILLD. (2pcs.)				○	
Photo Tube	SZH-PT	Magnification factor 1X, Two step light path selector.			○		
Photo Eyepiece	NFK2.5XLD				○		

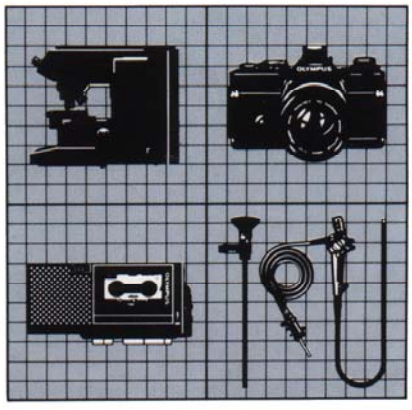
Total magnifications and actual field-of-view diameters

D.F. Plan objective / Eyepiece	Magnification	0.5X	0.75X	1X	1.5X	2X
	W.D. (mm)	198	113	81	49	39
GWH10X-D (Field Number 24)	Total magnification	3.8X～32X	5.6X～48X	7.5X～64X	11.3X～96X	15X～128X
	Field of view (mm)	64～7.5	43～5.0	32～3.8	21～2.5	16～1.9
GWH15X (16)	Total magnification	5.6X～48X	8.4X～72X	11.3X～96X	16.9X～144X	22.5X～192X
	Field of view (mm)	43～5.0	28～3.3	21～2.5	14～1.7	11～1.5
G20X (12)	Total magnification	7.5X～64X	11.3X～96X	15X～128X	22.5X～192X	30X～256X
	Field of view (mm)	32～3.8	21～2.5	16～1.9	11～1.3	8.0～0.9
GWH30X (6.5)	Total magnification	11.3X～96X	16.9X～144X	22.5X～192X	33.8X～288X	45X～384X
	Field of view (mm)	17～2.0	12～1.4	8.7～1.0	5.8～0.7	4.3～0.5

D.F. Plan Objectives

Module	N.A.	W.D. (mm)
D.F. Plan 0.5X	0.042	198
D.F. Plan 0.75X	0.063	113
D.F. Plan 1X	0.084	81
D.F. Plan 1.5X	0.125	48
D.F. Plan 2X	0.167	39

It takes a tremendous amount of skills to build a reputation as an innovator among industries as diverse as communications, medicine, information and science. Yet that's exactly what Olympus has accomplished since its inception in 1919.
Our varied product list is filled with technological achievements and resounding successes.
Not only in cameras, but also in a wide range of Microscopes. Fiberscopes. Microcassette recorders.
Clinical analysis equipment. Video equipment.
And more breakthroughs are on the way, particularly in the exciting new field of opto-electronics, which combines the resources of optics, electronics and precision engineering.
At Olympus, we've earned our reputation with an unfailing commitment to heavy research and development. With an uncompromising dedication to quality, precision and accuracy.
And with a stubborn unwillingness to follow the crowd. That's why we'll continue to lead the way with original products that surprise you, assist you, involve you, and fulfill you.



Photographic,
Medical,
Microscopic,
Industrial & Business Equipment

OLYMPUS

OLYMPUS OPTICAL CO., LTD.
San-Ei Building, 22-2, Nishi Shinjuku 1-chome, Shinjuku-ku, Tokyo, Japan
OLYMPUS OPTICAL CO. (EUROPA) GMBH
Postfach 104908, Wendenstrasse 14-16, 2000 Hamburg 1, West Germany
OLYMPUS CORPORATION
4 Nevada Drive, Lake Success, N.Y. 11042-1179, U.S.A.
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