

# OLYMPUS

Your Vision, Our Future

Stereo Microscopes

**SZ2**

**SZX7/SZ61/SZ51**

Comfort for your eyes - precision for your work



# Comfort for your eyes - precision for your work

If you want to improve your performance and efficiency in the field of stereo microscopy, you should choose the simplest route. The new Olympus SZ2 series of stereo microscopes provides a high level of optical convenience that is unique and avoids eye fatigue. Because the innovative ComfortView eyepieces allow natural, agreeable vision, thus considerably reducing the time required for adjusting the microscope.

Your eyes focus more quickly on the stereo image, your head and eyes enjoy more freedom of movement – without forfeiting the 3D effect. And the colour fidelity is so natural that you can hardly believe your eyes. But, rest assured, you can – thanks to Olympus SZ2 microscopes.

All three models - the SZX7 with its advanced Galilean optical system, the full-featured SZ61 and the versatile SZ51 - provide 3D images with true color, high resolution and no distortion. Comfort for your eyes - precision for your work.



**SZ51**

**SZ61**



**SZX7**



**SZ61-TR**

**SZX7:** Galilean optical system using parallel light paths for outstanding performance and easy expandability.

**SZ61:** Top-of-the-line optical performance, with 6.7:1 zoom ratio.  
Model variations: SZ61-TR (with trinocular tube),  
SZ61-60 (with 60 degree observation tube inclination).

**SZ51:** Versatile and cost-efficient.

## Optical excellence and system expandability – SZX7 with Galilean optics

Providing the optimal image for any specimen by the adoption of the Galilean optical system and the DF (Distortion Free) objective lens series with maximum N.A. (Numerical Aperture).

### The best zoom ratio in this class

With a magnification range of 8x-56x (using 1x objective/10x eyepiece), the SZX7 offers a maximum zoom ratio of 7:1. This is the best in its class, and allows any given specimen to be observed at the most appropriate magnification.

### The best resolving power in this class

Superior quality objectives deliver accurate, high resolution observation images which show every specimen in minute detail.

### A range of objectives to suit every specimen and every application

#### Superior image flatness

The DFPlan objective series accurately reproduces the original shape of the specimen.

#### Longest working distance (W.D.) in this class

The objectives range from the SZX-ACH1x (90mm W.D.) to the DFPL0.5x (171mm W.D.). As a result, even specimen surfaces which are difficult to access can be observed easily.

#### Ideal for high magnification

Superior image quality is ensured up to 336x, by combining a 2x objective with 30x eyepieces.



*Galilean optics feature two (right/left) independent and parallel zoom optical paths to produce the focal point with one objective lens. The system enables high optical performance as well as functional modularity.*



**ComfortView eyepieces for greater comfort and faster work**

Quick, comfortable observation and documentation are ensured by this completely new eyepiece design featuring Pupil Aberration Control and appropriate positioning in the eye point.

**Accurate color reproduction**

The careful selection of lens surface coating and glass materials in the entire optical system makes it possible to observe and document specimens in their original, authentic colors.

**Sharp, clear, high-contrast images**

The low, suppressed field curvature ensures accurate reproduction of original specimen shapes.

**A wide variety of observation tubes and intermediate tubes enable operators to obtain precisely the right image**

Various different types of tubes are available, and can be freely combined to create the ideal system for any specified purpose.

**SZX7 intermediate tubes:**

- Aperture diaphragm unit / SZX-AS
- Macro tube / SZX-DA
- Beam splitter / SZX-BS
- Photo adapter / SZX-PHA
- Eyepoint adjuster / SZX-EPA
- Side by side discussion tube / SZX-SDO
- Filter adapter / SZX-FAD
- Coaxial reflected light illuminator / SZX-ILLC



Aperture diaphragm unit / SZX-AS



① 45 degree binocular head / SZX-BI45    ② Tilting binocular head / SZX-TBI  
 ③ 30 degree trinocular head / SZX-TR30

## Precise, functional and compact – SZ61/SZ51

A practical range of functions for observation and documentation in a compact stereo microscope body. The SZ61/SZ51, incorporating the Greenough optical system.

### 6.7- the best zoom ratio in this class

The SZ61's class-leading magnification range extends from 6.7 through 45x (using 10x eyepiece), with a zoom ratio of 6.7:1. This derives from the newly developed optical system and allows quick, comfortable observations at the most appropriate magnification. The SZ51 provides a magnification range from 8x through 40x (using 10x eyepiece), with a zoom ratio of 5:1.

### Outstanding depth of focus and flatness

The 10-degree angle convergence of the image forming path in the Greenough optical system secures excellent image flatness with deep depth of focus.

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Quick, comfortable observation and documentation are ensured by this completely new eyepiece design featuring Pupil Aberration Control and appropriate positioning in the eye point.

### Accurate color reproduction

The careful selection of lens surface coating and glass materials in the entire optical system makes it possible to observe and document the specimen in their original, authentic colors.

### Sharp, clear, high-contrast images

The low, suppressed field curvature ensures accurate reproduction of original specimen shapes.



*The Greenough optical system has two zoom optical paths inclined at an inward angle. This enables a more compact microscope design while maintaining high performance.*



### Five zoom body variations with high performance

The SZ61 and SZ51 zoom bodies provide two different magnification ranges. They are available with an ergonomically designed 45-degree inclination tube for the use on normal stands. For special applications, where the zoom body has to be tilted for the use with other equipment or mounting on an universal stand, models with 60-degree inclination tube (SZ61-60/SZ51-60) are available. For documentation purposes, Olympus also offers the SZ61-TR, which incorporates a trinocular tube for easy attachment of digital and video cameras.

### Wide choice of auxiliary objectives

A wide choice of auxiliary objectives enables observations at magnifications from 1.6x to 270x and W.D. up to 400mm to comply with every application purpose.



**SZ61/SZ51**  
45° inclination tube



**SZ61-60/SZ51-60**  
60° inclination tube



**SZ61-TR**  
45° trinocular tube

## Work more comfortably...and more productively

The Olympus approach to ergonomic design seeks to achieve improvements that make work easier, more comfortable and more productive, all at the same time. That means applying advanced technological methods to maximizing operability, reducing factors that contribute to operator fatigue, and building in effective safety features like ESD design.

### **Ergonomic design based on 3D CAD analysis**

The microscope body and stand feature a design of precisely curved contours developed through careful 3D CAD analysis. Key ergonomic features include an all-round finish that's smooth to the touch and helps to reduce fatigue in long period observations.

### **Convenient front-access operation**

Improved ease of access to the most frequently used knobs and switches maximizes operator comfort and reduces back strain.

### **Tilting binocular tube for comfortable observations (SZX7)**

A comfortable position that minimizes the risk of back strain and muscle tension promotes productivity and quality in routine inspection tasks. The continuously adjustable tilting binocular tube helps the operator to quickly find the most comfortable eyepoint position.

### **Precise recall of specific magnification settings via integrated click-stop mechanism (SZX7) or zoom knob stopper (SZ61/SZ51)**

Many inspection tasks require the use of the same zoom magnification setting to ensure consistent and comparable results. The integrated click-stop mechanism provides quick and easy access to this important function. The zoom knob stopper allows

specific magnifications to be memorized and recalled any time, and the setting in use is clearly displayed on the front control panel.

### **New eyepiece reduces fatigue and excludes dust**

This eyepiece features a pupillary aberration control mechanism whereby the image remains visible even if the operator's eyes move. This has been found to lessen operator fatigue in long lasting observations. The special fixing technique is designed to exclude dust particles and keep the eyepiece firmly in place ensuring clear images and best eyepiece position.

### **ESD safety design**

The increasing miniaturization and complexity of electronic devices raises the risk of damage by electric shock caused by electrostatic discharge. For this reason, Olympus has taken special measures to design its stereo microscope bodies and main accessories to discharge static electricity from 1000V down to 100V in less than 0.2 seconds, preventing damage to samples.



LED Transmitted / Reflected Light Illumination Stand



Tilting binocular head (SZX7)



Zoom handle



Click-stop mechanism (SZX7)



Zoom knob stopper (SZ61/SZ51)



Eyepiece lock



Ground wire connection (back side)

# Olympus light solutions maximize visibility in different tasks

Olympus offers a range of light solutions perfectly tuned to the optical system of the stereo zoom microscope to maximize the visibility of even minute characteristics.

## Universal reflected illumination systems

Fiber guide illumination systems offer the highest illumination quality and flexibility. Olympus offers a compact, cost effective 22W light source (SZ2-LGB), a 150W light source (KL1500) for professional use and the 250W KL2500 for special applications.

## Special illumination techniques

### Looking into holes

Olympus offers effective coaxial illuminators for the SZX7 (SZX-ILLC) and the SZ61/SZ51 (SZ2-ILLC) which direct the light on the microscope's optical axis onto the specimen.

### Making tension in transparent materials visible

Also available are simple and professional transmitted illumination stands with polarizing equipment (SZX-AN, SZX-POL and SZ-POL2 ) for the efficient evaluation of tensions in transparent materials like plastic and glass.



*Polarized light with 1 lambda*

## Transmitted light illumination systems

For all transparent materials in life science as well as for industrial inspection tasks the Olympus choice of illumination stands ranges from simple brightfield/simple oblique (SZX-ILLK/SZ2-ILA) up to brightfield /darkfield (SZX-ILLD2) and brightfield /oblique Koehler (SZX-ILLB2) illumination models.

## Fluorescence

For the macro fluorescence observation of living cells and organisms with GFP and its different spectral variants (BFP, CFP, EGFP YFP) and coral fluorescence protein RFP, Olympus supplies with the RFL fluorescence illuminator and specialized digital cameras highest brightness and contrast in fluorescence imaging. The same technology can also be used in material science to detect micro cracks or to make resist layers on microchips visible.

## Fast moving objects

For the documentation of objects like moving insects Olympus offers a special Flash adapter for the use with the KL fibre guide series.



22W single fiber guide illumination system



Transmitted light stand SZ2-ILA



Coaxial illuminator SZ2-ILLC



250W light source KL2500



**The new LED integrated reflected/transmitted illumination stand SZ2-ILST**

The world's first universal reflected/transmitted light LED illumination stand brings together all the advantages of LED technology. It allows the simultaneous use of reflected and transmitted illumination. The use of super slim, high-brightness LEDs successfully integrates transmitted illumination in a very slim base that allows easy specimen access and manipulation.

**Multi segment LED ring light system MC1500**

The PC controllable 8 segment VisiLED ring light series allows the discovery of specimens in a completely new way. This modular LED system can be programmed to create variable oblique illumination, mixed and adjustable incident and transmitted light, frequency controllable strobe lighting, and flash with adjustable duration and intensity.

*The transmitted/reflected integrated LED illumination stand's slim body and easy operation enables quick observations in a comfortable posture.*



multisegment illumination



8 segment LED ring light



LED controller MC1500



Transmitted darkfield

## Digital imaging



SZX7+SZX-TR30+DP70

### Digital camera DP70 (SZX7, SZ61-TR)

By combining Olympus digital camera technologies originally developed for the consumer market with special high-speed processing hardware, images with up to 12.5 million pixels can be captured at high speed (around 3 seconds) while fully maintaining image quality, accuracy and color fidelity. The DP70 employs a 2/3 inch CCD.

### Microscope digital camera DP12 (SZX7, SZ61-TR)

Compact overall design, with palm-size multi-function control unit integrating a 3.5" LCD monitor with 200,000-pixel display, and a small footprint that makes it easy to install and lay out any necessary auxiliary equipment. The 3.34 million pixel and 1/1.8 inch progressive scanning CCD system ensures highly precise digital images which can be stored at a maximum resolution of 2048x1536.



SZ61+CAMEDIA Micro Imaging System

### CAMEDIA micro imaging system

A simple adapter enables an Olympus CAMEDIA digital camera to be attached to the eyepiece of a binocular body — an easy, practical and cost-efficient means of obtaining digital images.

## Wide range of accessories to meet the needs of every application

### Easy mounting with other equipment (bonder and prober arms)

The SZX7, SZ61 and SZ51 are designed to be integrated into process equipment. Olympus offers various bonder and prober arms for all common brands. The compact shape of the microscope zoom body and a wide choice of auxiliary lenses with working distances of up to 400 mm offers the right solution for any integration requirements.



### Suspension arm stands

The new STX suspension arm system for stereo microscopes lets you move your microscope where you need it. The microscope can be easily moved in X, Y and Z direction. Due to the precisely adjustable suspension arm the microscope can be positioned in any height by just the tip of a finger. The various arm types and mounting possibility gives the flexibility to tune the stand to any application.



STX+SZ61

### Ergonomic low positioned focus handles

With the focusing unit SZ2-FO, focus adjustment can be done with the hands resting on the work surface. The action of focusing requires minimal force as the microscope zoom body does not need to be moved. This allows prolonged work on difficult samples without fatigue.



SZ2-FO

## ■ SZX7 specifications

Item		Specifications					
Zoom microscope body SZX-ZB7		Zoom drive: Horizontal knob system Click stop for each zoom magnification: ON-OFF switching possible Zoom ratio values: 7:1 (0.8x to 5.6) Zoom magnification indication: 0,8; 1; 1,25; 1,6; 2; 2,5; 3,2; 4; 5; 5,6 Objective mouting: Screw mounting into thread Lead-free materials used					
Aperture iris diaphragm control: The AS unit (SZX-AS) is mountable							
Observation tube SZX-BI45 SZX-TBI SZX-TR30		SZX-BI45		SZX-TBI		SZX-TR30	
		Binocular tube View inclination angle 45° Lead-free materials used		Tilting binocular tube View tilting angle 5° to 45°		Trinocular tube View inclination angle 30° Light path selection:2 steps (Binocular 100%, Video & photo 80%/Binocular 20%)	
Interpupillary distance adjustable range: 50 to 76 mm Eyepiece clamping knob provided							
Stand		SZ2-ST		SZ2-ILST			
SZ2-ST		Standard stand		LED reflected/transmitted illumination stand			
SZ2-ILST		Frame installation		Mounting diameter 76 mm			
		Focusing adjustment		Knob rotation tension adjustment Focusing stroke 120 mm			
		Stage plate		SZ2-SPBW (Black & white) SP-C (Glass clear transparent) The dedicated glass plate in 100 mm dia. included			
		Light source		Fiber optic illumination system SZ2-LGB mountable (option) Transmitted light illumination attachment (SZ2-ILA) mountable (option) Transmitted illumination: LED Reflected illumination: LED Average LED life span: 6000 hrs. Input rating: 100-120V/200-240V~0.15/0.1A, 50/60Hz			
Objective lens		Model		Working distance			
*1 The SZ2-ET auxiliary sleeve is required when the SZ2-ST/SZ2-ILST is used.		DFPL0.5x4*1 DFPL0.75x4 DFPLAPO1x-4 SZX-ACH1x SZX-ACH1.25x DFPL1.5x4 DFPL2x4 All objectives: lead-free materials		171 mm 116 mm 81 mm 90 mm 68 mm 45.5 mm 33.5 mm			
Eyepieces		Comfort/view WHSZ series All eyepieces: lead-free materials					
Weight		Configuration 1		4,380 g		5,420 g	
		Configuration 2		5,180 g		6,220 g	

Configuration 1: SZX-ZB7 + DFPLAPO1x-4 + individual observation tube + WHSZ10x-H (2) + SZ2-ST

Configuration 2: SZX-ZB7 + DFPLAPO1x-4 + individual observation tube + WHSZ10x-H (2) + SZ2-ILST

## ■ SZ61/SZ51 specifications

Item		Specifications				
Microscope body		SZ61	SZ61-60	SZ61TR	SZ51	SZ51-60
SZ61		Magnification			0.67x to 4.5x	
SZ61-60		Zoom ratio			6.7: 1	
SZ61TR		Working distance			110 mm	
SZ51		Tube inclination angle			45°	
SZ51-60					60°	
		Interpupillary distance adjustment			Left/right interlocked Adjustment range: 52 to 76 mm (using the WHSZ10X eyepieces)	
		Video camera adaptability			—	
		Zoom adjustment knob			Left/right single-shaft horizontal knob high/low magnification stopper incorporated.	
		Optical components			Lead-free materials used	
Auxiliary objective		Mounting by screwing into the thread at the bottom of frame (M48 x0.75 thread)				
Eyepiece		ComfortView WHSZ series Lead-free materials used				
Stand		SZ2-ST			SZ2-ILST	
SZ2-ST		Standard stand			LED reflected/transmitted illumination stand	
SZ2-ILST		Frame installation			Mounting diameter: 76 mm	
		Focusing adjustment			Focusing stroke: 120 mm	
		Stage plate			SZ2-SPBW (Black & white for anti-ESD) SP-C (Clear glass plate) The dedicated glass plate in 100 mm dia. included	
		Light source			Fiber optic illumination system SZ2-LGB mountable (option ) Transmitted light illumination attachment (SZ2-ILA) mountable (option) Transmitted illumination: LED Reflected illumination: LED Average LED life span: 6000 hrs. Input rating: 100-120V/200-240V ~0.15/0.1A, 50/60Hz	
Weight		Zoom body only		1,300 g		1,500 g
		Configuration 3		3,520 g		3,720 g
						1,300 g
						3,520 g

Configuration3: Zoom body + WHSZ10X-H(2) + SZ2-ST

## ■ ComfortView WHSZ eyepiece

	F.N.	Diopter adjustment	Reticle	Focal magnification
WHSZ10x	22	—	N.A.	—
WHSZ20x	12.5	—	N.A.	—
WHSZ10x-H	22	-8+5	Yes*2	—
WHSZ15x-H	16	-8+5	Yes*2	—
WHSZ20x-H	12.5	-8+5	Yes*2	1.3x
WHSZ30x-H	7	-8+5	Yes*2	2x

\*2Applicable reticle size: 24 mm diameter,  $\tau=1.5$

## ■ Auxiliary objective for SZ61/SZ51

	Working distance (mm)
110AL0.25x	400
110ALK0.3x	250-350
110ALK0.4x	180-250
110AL0.5x	200
110AL0.62x	160
110AL0.75x	130
110AL1.5x	61
110AL2x	38

## ■ SZX7 optical performance

Eyepiece	WHSZ10x-H WHSZ10x		WHSZ15x-H		WHSZ20x-H WHSZ20x		WHSZ30x-H	
	F.N. 22		F.N. 16		F.N. 12.5		F.N. 7	
Objective lens	Total magnification	Field of view (mm)	Total magnification	Field of view (mm)	Total magnification	Field of view (mm)	Total magnification	Field of view (mm)
0.5x	4x-28x	55-7.8	6x-42x	40.0-5.7	8x-56x	31.3-4.5	12x-84x	17.5-2.5
0.75x	6x-42x	36.7-5.2	9x-63x	26.7-3.8	12x-84x	20.8-3.0	18x-126x	11.7-1.7
1x	8x-56x	27.5-3.9	12x-84x	20.0-2.9	16x-112x	15.6-2.2	24x-168x	8.8-1.3
1.25x	10x-70x	22-3.1	15x-105x	16.0-2.3	20x-140x	12.5-1.8	30x-210x	7.0-1.0
1.5x	12x-84x	18.3-2.6	18x-126x	13.3-1.9	24x-168x	10.4-1.5	36x-252x	5.8-0.83
2x	16x-112x	13.8-1.9	24x-168x	10.0-1.4	32x-224x	7.8-1.1	48x-336x	4.4-0.63

## ■ SZ61/SZ51 optical performance

Microscope Body	Zoom magnification	WHSZ10x-H WHSZ10x		WHSZ15x-H		WHSZ20x-H WHSZ20x		WHSZ30x-H	
		F.N. 22		F.N. 16		F.N. 12.5		F.N. 7	
		Total magnification	Field of view (mm)	Total magnification	Field of view (mm)	Total magnification	Field of view (mm)	Total magnification	Field of view (mm)
SZ61*	0.67x	6.7	32.8	10.1	23.9	13.4	18.7	20.1	10.4
	1x	10	22	15	16	20	12.5	30	7.0
	2x	20	11	30	8	40	6.3	60	3.5
	3x	30	7.3	45	5.3	60	4.2	90	2.3
	4.5x	45	4.9	67.5	3.6	90	2.8	135	1.6
SZ51*	0.8x	8	27.5	12	20	16	15.6	24	8.8
	1x	10	22	15	16	20	12.5	30	7.0
	2x	20	11	30	8.0	40	6.3	60	3.5
	3x	30	7.3	45	5.3	60	4.2	90	2.3
	4x	40	5.5	60	4.0	80	3.1	120	1.8

\* No auxiliary objective lens is attached

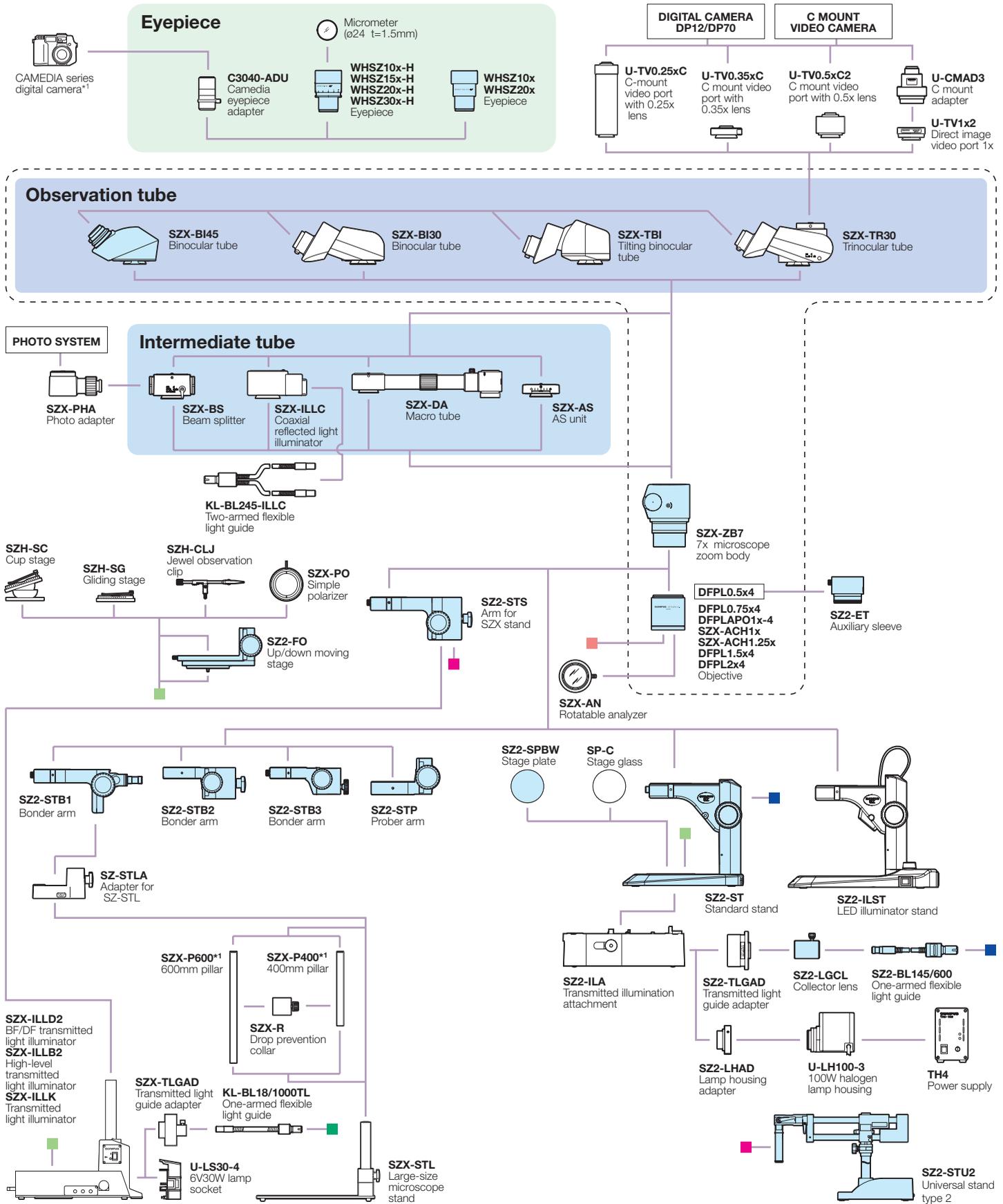
## ■ Fiber optic illumination system

Item		Specifications					
Type of illumination method		Homogeneous	Single spot	Double spot	Single spot	Double spot	Homogeneous
Type of fiber optic		SZ2-6PRL66	SZ2-SHL135/500	SZ2-SHL235/500	SZ2-BL145/600	SZ2-BL245/600	SZ2-BL245-ILLC
Tube	Type	Flexible	Goose neck	Goose neck	Flexible	Flexible	Flexible
	Length	650 mm	500 mm	500 mm	600 mm	600 mm	450 mm
Fiber	Type	A2					
	n.A.	0.64					
Bundle diameter	Input end	6,8 mm	3,5 mm	5,0 mm	4,5 mm	6,5 mm	6,5 mm
	Output end	6x3 mm diameter	3,5 mm	3,5 mm	4,5 mm	4,5 mm	4,5 mm
Minimum bending radius		40	60	60	40	40	40

## ■ Compact halogen light source SZ2-LGB

Item	Specifications
Dimensions and weight	90(W) x 153(H) x 100(D) mm, 600g (AC adapter 200g)
Rated voltage	AC adapter: input/100-240V/50/60Hz, output/ 12VDC2A
Power consumption	22W
Bulb type	12V22W halogen bulb with mirror
Bulb model	12V22WHAL (Philips JCR12V22WA/3)
Average life span of bulb	2500 hours (minimum)
Light intensity adjustment	Voltage adjustment (3 steps)
Applicable stand	SZ2-ST

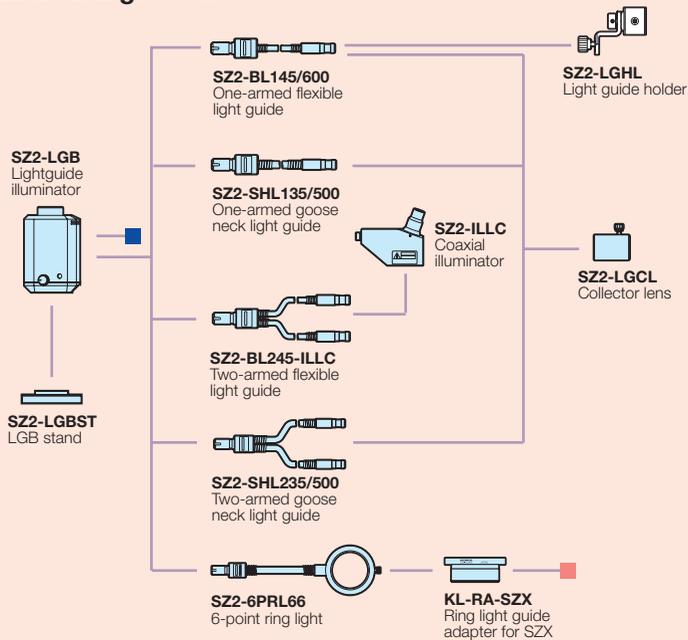
# ■ SZX7 system diagram



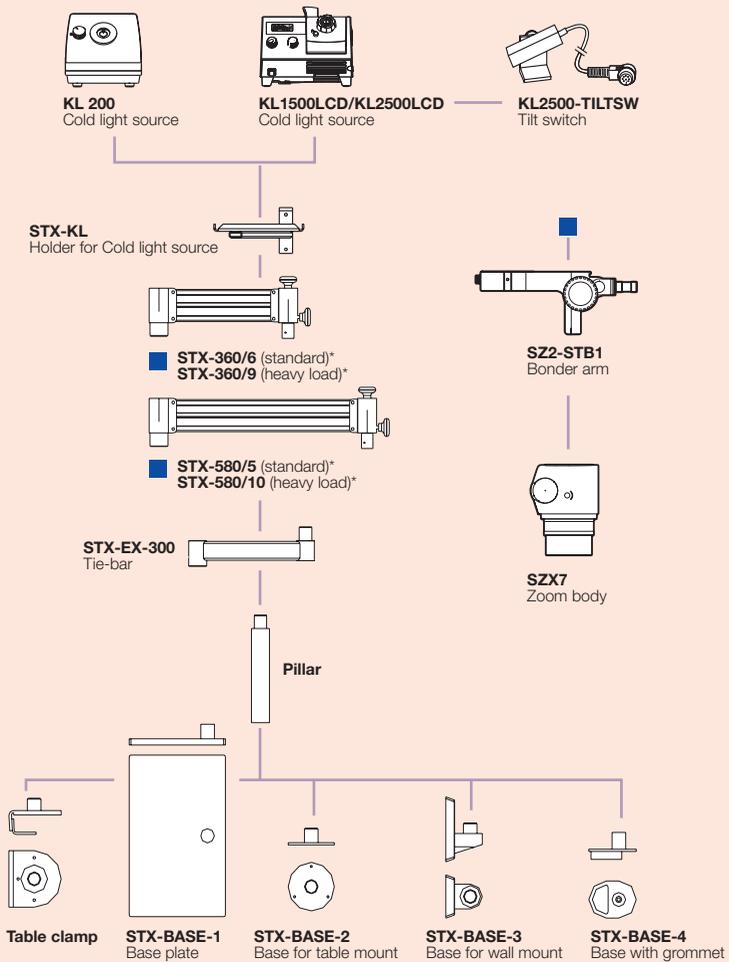
ESD compatible

\*1 SZX-P400 and SZX-P600 can be attached to the transmitted light illuminators.

## SZ2-LGB Lightsource



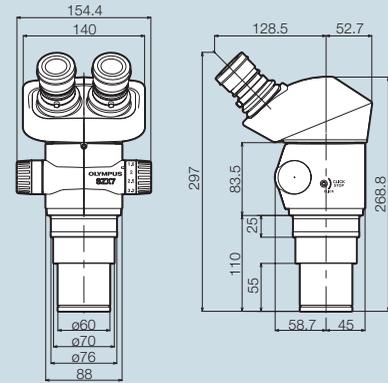
## STX Suspension arm



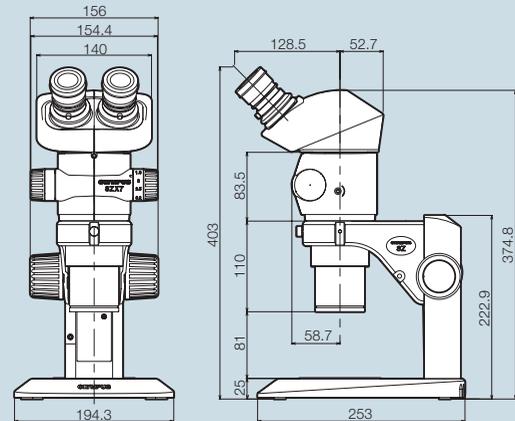
\*Suspension arm set including pillar and table clamp

## SZX7 dimensions

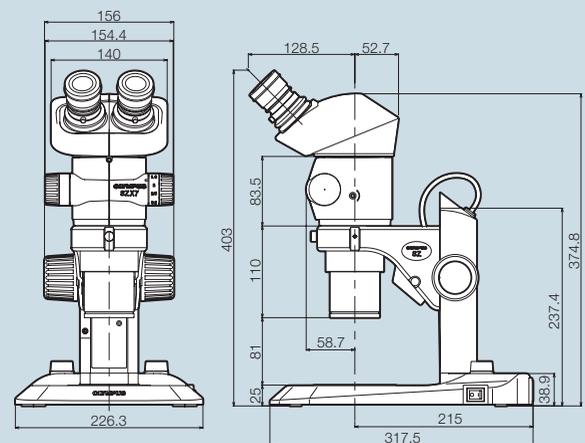
### SZX7



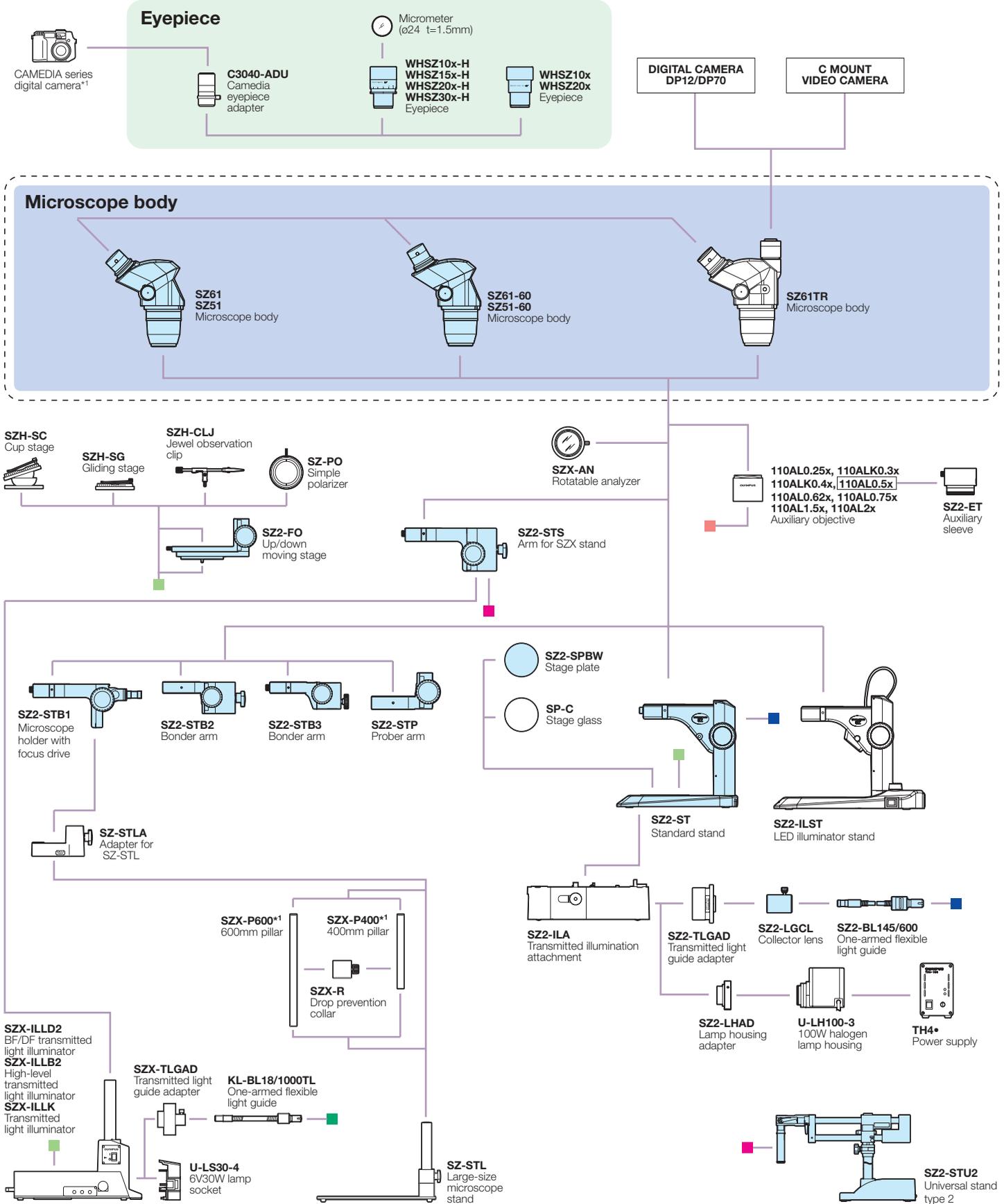
### SZX7+SZ2-ST



### SZX7+SZ2-ILST

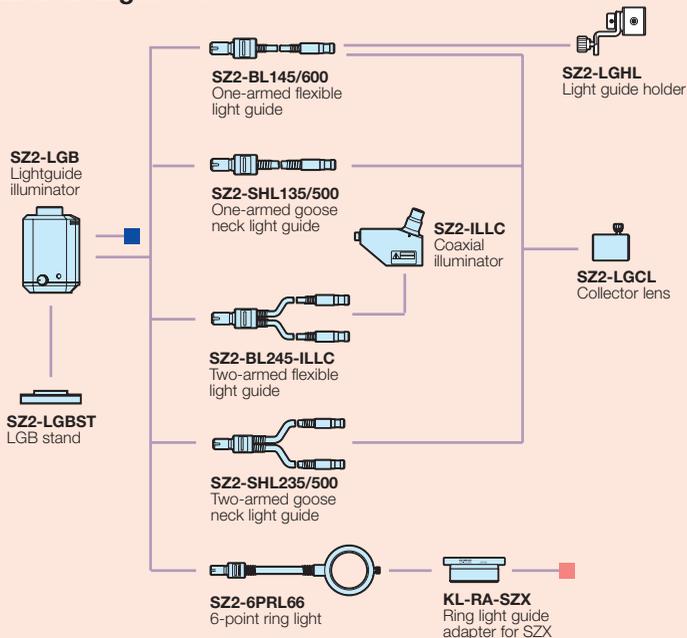


## ■ SZ61/SZ51 system diagram

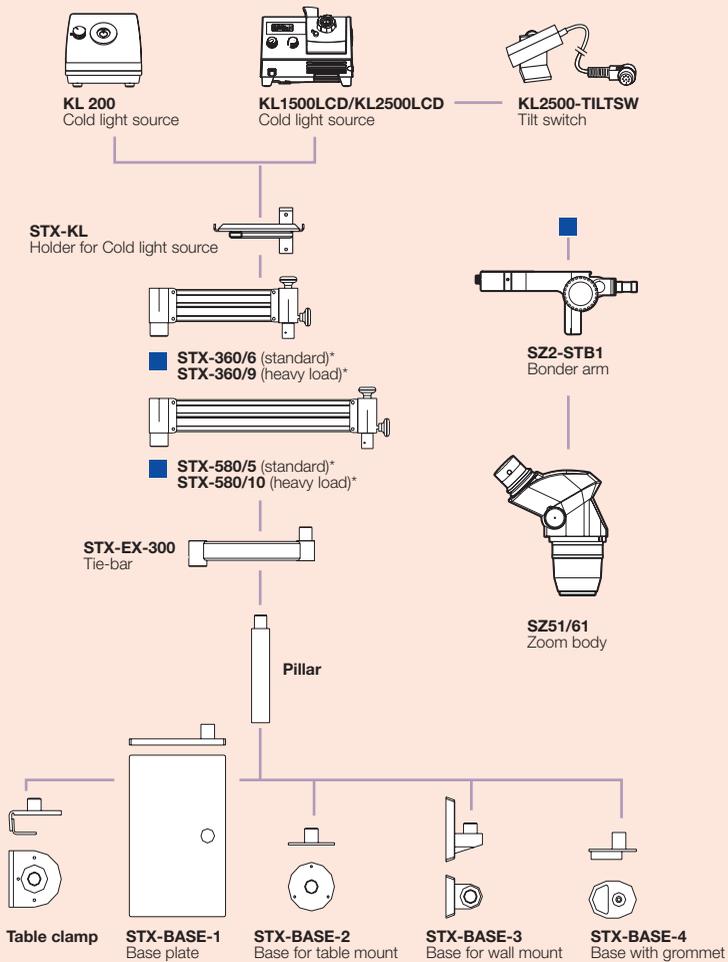


\*1 SZX-P400 and SZX-P600 can be attached to the transmitted light illuminators.

## SZ2-LGB Lightsource



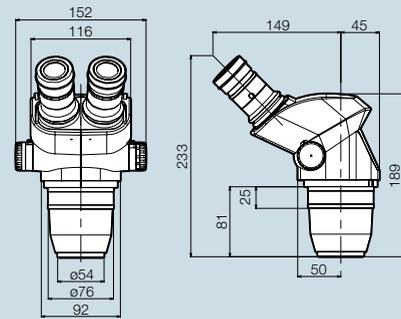
## STX Suspension arm



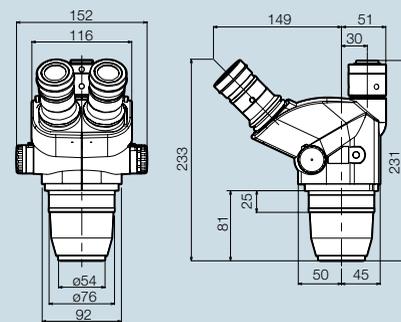
\*Suspension arm set including pillar and table clamp

## ■ SZ61/SZ51 dimensions

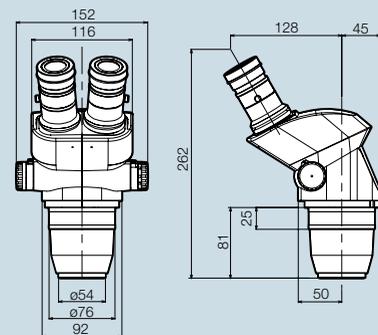
### SZ61/SZ51



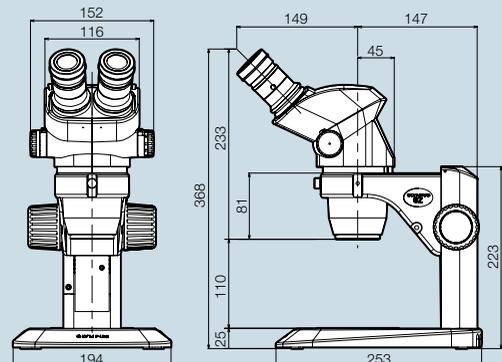
### SZ61-TR



### SZ61-60/SZ51-60



### SZ61+SZ2-ST/SZ51+SZ2-ST



Specifications are subject to change without any obligation on the part of the manufacturer.

[www.olympus-europa.com](http://www.olympus-europa.com)

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