

# Nikon

## Stereoscopic Microscope

# SMZ-1B

### INSTRUCTIONS

#### CAUTIONS

##### 1. Avoid sharp knocks!

When carrying the microscope, or manipulating, handle the microscope gently, taking care to avoid sharp knocks.

##### 2. Locations of microscope

Avoid the following conditions: dust, vibration and exposure to high temperature, moisture or direct sunlight.

##### 3. Dirt on the lens

Do not leave dust, dirt or finger marks on the lens surfaces. They will prevent you from clear observation of the specimen image.

#### MAINTENANCE

##### 1. Cleaning the lenses

To clean the lens surfaces, remove dust using soft brush or gauze. Only for removing finger marks or grease, should soft cotton cloth, lens tissue or gauze lightly moistened with absolute alcohol (ethyl alcohol or methyl alcohol) be used.

Observe sufficient caution in handling alcohol.

##### 2. Cleaning the plastic parts

Avoid the use of any organic solvent (for example, thinner, ether, alcohol, xylene etc.) for cleaning the plastic parts and painted surfaces of the instrument.

##### 3. Never attempt to dismantle!

Never attempt to dismantle the instrument so as to avoid the possibility of impairing the operational efficiency and accuracy.

##### 4. When not in use

When not in use, cover the instrument with the accessory vinyl cover, and store it in a place free from moisture and fungus.

##### 5. Periodical checking

To maintain the performance of the instrument, we recommend to check the instrument periodically. (For details for this check, contact your dealer.)

- ★ Please note as per your Nikon warranty, "Any defects or damage directly or indirectly caused by the use of unauthorized replacement parts and/or performed by unauthorized personnel" will void the warranty.

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## NOMENCLATURE AND USING

### Eyepieces

The eyepieces available as standard for the Microscope SMZ-1B are 10X. 15X, 20X and 33X are also available on order. Note that no regular (biological) microscope eyepiece can be used interchangeably.

### Diopter rings

Provided on both the righthand and lefthand eyepieces and adjustable to prevent out-of-focus during the time of zooming.

### Microscope body

#### Microscope body clamp screw

For fastening firmly the main body of Microscope SMZ-1B onto the focus stand.

### Episcopic illuminator

Incorporates a halogen lamp 6V-10W, illumination angle is changeable. To achieve the most appropriate illumination for observation, adjust the position of the lamp.

### Clips

To hold the specimen in place securely.

### Stage plate

The black or opal surface is to be used according to the specimen to be observed. On the diascopic illuminator base, use the transparent glass plate.

### Zooming knob

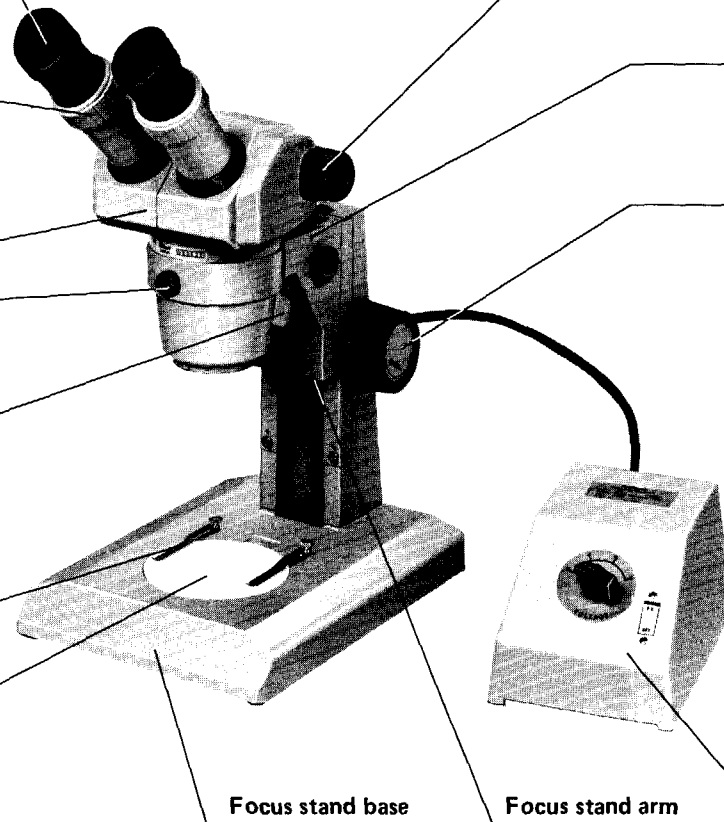
Rotation of the zooming knob changes the magnifying power of the objective continuously from 0.8X to 3.5X, the powers being indicated on the knob.

### Flexible arm attaching screws

Provided on both the right and left sides of the focus stand arm and used to attach the flexible arm.

### Focus knobs

Rotation of the knobs moves the main body of microscope. For increasing the tightness of rotation turn the right-and lefthand knobs in the opposite directions, i.e. in the fastening direction for each knob, as indicated by the arrow "TENSION" marked on the knobs. The tightness will be decreased by releasing the each knob at the same time.



## OPERATING PROCEDURE

1. Place the specimen onto the stage plate.
2. Turn both diopter rings on the binocular tubes until the end surface of each ring coincides with the black engraved line.
3. Looking into the eyepieces of the binocular tubes, adjust the interpupillary distance by moving the binocular tubes, so that both the circular viewfields are brought into coincidence.
4. Set the zooming knob to 3.5X.
5. Rotating the focus knobs, bring the specimen image into focus. If, beforehand, the distance between the specimen and the bottom of the microscope main body is made about 100mm, focusing will be facilitated.
6. Rotate the zooming knob to 0.8X.
7. Manipulating the right- and lefthand diopter rings one after the other, bring the images into focus independently.
8. Repeat the above procedures from 4. to 7. to make sure of exact focusing, and, then the image will keep its sharpness all the time of continuous magnification change by zooming.

**MAGNIFICATION TABLE**

Objective	Auxiliary objectives	Working distance (mm)	Eyepieces							
			10X Field number 21		15X Field number 14		20X Field Number 12		33X Field number 5	
			Total magnification	Real field (mm)	Total magnification	Real field (mm)	Total magnification	Real field (mm)	Total magnification	Real field (mm)
0.8~3.5X	—	100	8~35X	26.3~6	12~52.5X	17.5~4	16~70X	15~3.4	26.4~115.5X	6.3~1.4
	0.5X	181	4~17.5X	52.5~12	6~26.3X	35~8	8~35X	30~6.9	13.2~57.8X	12.5~2.9
	2X	32.7	16~70X	13.1~3	24~105X	8.8~2	32~140X	7.5~1.7	52.8~231X	3.1~0.7

*We reserve the right to make such alterations in design as we may consider necessary in the light of experience. For this reason, particulars and illustrations in this handbook may not conform in every detail to models in current production.*

## ACCESSORIES

<b>Eyepieces:</b>	15×, 20× and 33×
<b>Auxiliary objectives:</b>	2×, 1.5×, 0.7×, 0.5×, 0.4× and 0.27× (with 0.5× objective, use the Extension ring)
<b>Universal illuminator</b>	
<b>Fluorescent ring illuminator</b>	
<b>Fiber optics illuminators:</b>	Bifurcated and Ring illuminators
<b>Diascopic illuminator base</b>	
<b>Episcopic illuminator:</b>	Incorporates a halogen lamp 6V-10W (G.E. No. 787)
<b>Flexible supporting arm</b>	
<b>Universal arm</b>	
<b>Universal stand:</b>	Table stand and Table clamp stand

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