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Find the *Nikon SMZ-1* at our website: ***Click HERE***

Nikon

Stereoscopic Microscope
SMZ-1/SMZ-1 ESD
SMZ-1B/SMZ-1B ESD

Instructions

Thank you for purchasing the Nikon product.
This instruction manual is written for the users of Nikon Stereoscopic Microscopes.
To ensure correct usage, read this manual carefully before operating the instrument.

- It is prohibited to reproduce or transmit this manual in part or whole without Nikon's expressed permission.
- The contents of this manual are subject to change without notice.
- Although every effort has been made to ensure the accuracy of this manual, if you note any points that are unclear or incorrect, contact your nearest Nikon representative.
- Some of the products described in this manual may not be included in the set you have purchased.
- Also refer to the instruction manuals for any other products that are used in conjunction with this instrument (such as the power supply and illuminators).

WARNING

Use the stereoscopic microscope for microscopic observation only. Do not use it for any other applications.

NOTES ON HANDLING THE INSTRUMENT

1. Installation location

Note the following points when installing the stereoscopic microscope.

- Install the microscope in a location with the temperature between 0°C and 40°C, and humidity of less than 80%. If installed in a hot and humid location, mold could form on the lenses or condensation could form inside, resulting in a deterioration of performance or damage to the microscope.
- Install the microscope in a location that is not subject to vibration.
- Install the microscope in a level location.
- Install the microscope in a location that is free of dust and dirt.

2. Handle the microscope gently

The stereoscopic microscope is a precision optical instrument. Handle it carefully, and do not subject it to impacts.

3. Do not disassemble

Disassembly may cause damage to the instrument. Never disassemble any part except as described in this manual. If you notice any malfunction in this instrument, notify your nearest Nikon representative.

4. Lens cleaning

Do not get dust, fingerprints, etc., on the lenses. Dirt on the lenses will adversely affect the view of the image. If any of the lenses get dirty, clean them as described below.

- Use an air blower to blow away dust. If that does not suffice, brush away the dust with a soft brush, or else wipe it away with gauze.
- Only if there are fingerprints or grease on a lens, dampen a piece of soft, clean cotton cloth, lens tissue, or gauze with absolute alcohol (ethyl alcohol or methyl alcohol) and wipe away the dirt. However, do not wipe more than once with the same place on the cloth.
- Because absolute alcohol is highly flammable, be careful in handling them especially around open flames.
- Observe the manufacturer's cautions in handling absolute alcohol.

5. Cleaning painted components

Do not use organic solvents (such as alcohol, ether, or paint thinner) on painted components, plastic components, or printed components. Doing so could result in discoloration or in the peeling of printed characters. If a component is very dirty, wipe it gently with gauze dampened in a mild detergent solution.

6. Storage

Store the stereoscopic microscope under conditions of low humidity where mold is not likely to form.

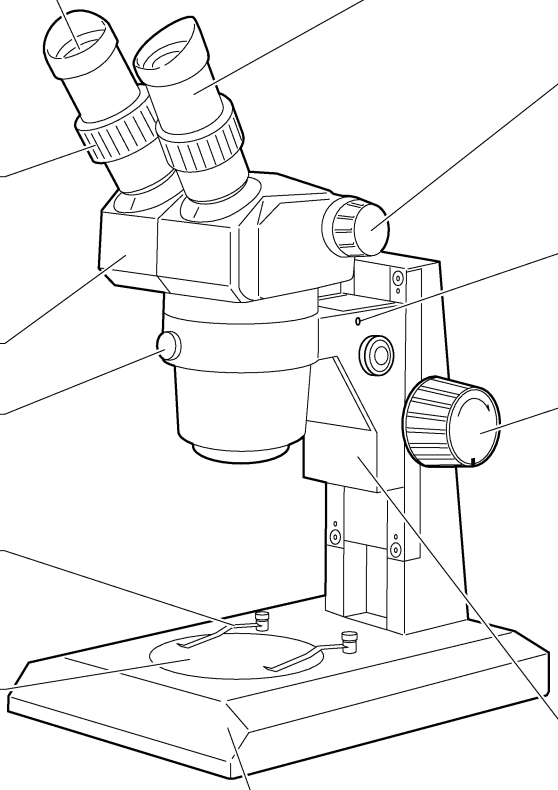
Put a vinyl cover over the equipment to protect it from dust.

7. Regular inspections

Regular inspections of the microscope are recommended in order to maintain peak performance. Contact your nearest Nikon representative for details about regular inspections.

NOMENCLATURE AND USING

This illustration is showing SMZ-1.



Eyepieces

The eyepieces available as standard are 10×.
15×, 20× and 33× are also available on order.
Note that no regular (biological) microscope eyepiece can be used interchangeably.
Rubber eyeguards are not supplied on ESD models.

Diopter rings

Provided on both the right and lefthand eyepieces. Adjust to prevent out-of-focus during the zooming operation.

Microscope body

Microscope body clamp screw

For fastening firmly the main body of the stereoscopic microscope onto the focus stand.

Clips (optional)

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 simplified diascopic stage, use the transparent glass plate.
The metal stage plate is supplied on ESD models.

Eyepiece inclination

SMZ-1, SMZ-1 ESD: 30° off vertical
SMZ-1B, SMZ-IB ESD: 45° off vertical

Zooming knob

Rotation of the zooming knob changes the magnifying power of the objective continuously from the lowest to the highest. The powers are indicated on the knob.

Flexible arm attaching screws

Provided on both the right and left sides to attach the flexible arm available on order.

Focus knobs

Rotation of the knobs moves the main body of microscope vertically for focusing.
For adjusting the tightness of the rotation, turn the right and lefthand knobs in the opposite directions. When each knob is turned in the direction indicated by the arrow TENSION mark on the knobs, the tightness will be increased.

Focus stand arm

Focus stand base

Other types of stands are available.

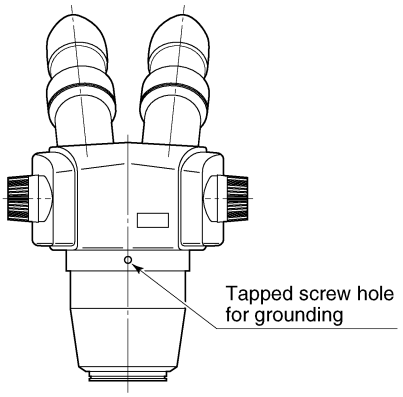
MAGNIFICATION TABLE

Model	Auxiliary objectives	Working distance (mm)	Eyepieces							
			10× Field number 21		15× Field number 14		20× Field number 12		33× Field number 6	
			Total magnification	Real field (mm)	Total magnification	Real field (mm)	Total magnification	Real field (mm)	Total magnification	Real field (mm)
SMZ-1	–	100	7~30×	30~7	10.5~45×	20~4.7	14~60×	17.1~4	23.1~99×	8.6~2
SMZ-1 ESD	0.5×	181	3.5~15×	60~14	5.3~22.5×	40~9.3	7~30×	34.2~8	11.6~49.5×	17.1~4
	2×	32.7	14~60×	15~3.5	21~90×	10~2.3	28~120×	8.6~2	46.2~198×	4.3~1
SMZ-1B	–	100	8~35×	26.3~6	12~52.5×	17.5~4	16~70×	15~3.4	26.4~115.5×	7.5~1.7
SMZ-1B ESD	0.5×	181	4~17.5×	52.5~12	6~26.3×	35~8	8~35×	30~6.9	13.2~57.8×	15~3.4
	2×	32.7	16~70×	13.1~3	24~105×	8.8~2	32~140×	7.5~1.7	52.8~231×	3.8~0.9

OPERATING PROCEDURE

1. Place the specimen on 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, 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 its highest magnification.
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 its lowest magnification.
7. Rotate the right- and lefthand diopter rings one after the other to bring the images into focus independently.
8. Repeat the above processes 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.

Models SMZ-1 ESD and SMZ-1B ESD are made antistatic. When used together with antistatic stand and eyepieces, they are very useful in observing specimens weak against static. If necessary, connect the microscope to the ground using the tapped screw hole at the rear of the microscope (screw in the M4-sized screw shorter than 6mm).



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NIKON CORPORATION
Instruments Division
Yokohama Plant

NIKON CORPORATION
9-16, Ohi 3-chome, Shinagawa-ku, Tokyo 140, Japan
Tel: +81-3-3773-8121/8122 Fax: +81-3-3773-8115

NIKON INC.
Instrument Group
1300 Walt Whitman Road, Melville, NY 11747-3064, U.S.A.
Tel: +1-516-547-8500 Fax: +1-516-547-0306

NIKON EUROPE B.V.
Schipholweg 321, P.O. Box 222, 1170 AE Badhoevedorp, The Netherlands
Tel: +31-20-44-96-222 Fax: +31-20-44-96-298

NIKON AG
Kaspar-Fennerstrasse 6, 8700 Küsnacht, Zürich, Schweiz
Tel: +41-1-913-62-00 Fax: +41-1-910-37-44

NIKON GMBH
Tiefenbroicher Weg 25 40472 Düsseldorf 30, Fed. Rep. of Germany
Tel: +49-0211-94-14-0 Fax: +49-0211-94-14-322

NIKON FRANCE S.A.
191, rue du Marché Rollay, 94504 Champigny-sur-Marne Cedex France
Tel: +33-1-45 16 45 16 Fax: +33-1-45 16 00 33

NIKON INSTRUMENTS S.P.A.
Via Tevere, 54 50019 Sesto Fiorentino (FI), Italia
Tel: +39-55-3009601 Fax: +39-55-300993

NIKON U.K. LTD.
380 Richmond Road, Kingston, Surrey KT2 5PR, United Kingdom
Tel: +44-181-541-4440 Fax: +44-181-541-4584

NIKON SINGAPORE PTE LTD.
150 Beach Road #30-01/04, The Gateway West, Singapore 189720
Tel: +65-297-8123 Fax: +65-297-8131

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