Superb optical performance and ease of operation that sets a new standard for stereoscopic zoom microscopes in the 21st century.

*True for stereoscopic zoom microscopes as of February 2000.*
Samples appear sharp and undistorted, thanks to Nikon's superb optical technology.

New objectives feature higher N.A.'s and exceptional resolving power

In pursuit of sharper and brighter images, Nikon has developed a series of objectives featuring higher N.A.’s and incredible resolving power. For example, the P-HR Plan Apo 1.6X objective* delivers an N.A. of 0.21 and a resolving power of 630 lines/mm. These superb objectives feature optimum contrast and a minimum of flare across the entire view field out to the edges.

*Patent pending in Japan

Images appear undistorted and natural-looking

Producing images that cause less strain on your eyes was one goal of Nikon’s ergonomic design. We tackled the problems usually associated with stereoscopic microscopes, such as surface irregularities and the apparent bulging of objects, and solved these to a high degree by minimizing the distortion in these lenses. Now you can view stereoscopic images that appear natural-looking right out to the periphery.

Successful correction of chromatic aberration

Nikon’s approach to reducing chromatic aberration extends from just the right choice of optical glass to the optical design itself, resulting in a high degree of correction for axial and lateral chromatic aberrations. Although reducing chromatic aberrations and eliminating distortion were traditionally thought to be extremely difficult, Nikon has succeeded brilliantly, producing stereoscopic images with true-to-life colors.
Ultrahigh magnification and exceptionally large zoom ratio provide observations that are state-of-the-art.

**World's largest zoom ratio of 15X**
The culmination of Nikon's leading-edge optical technologies, the SMZ1500 features the world's largest zoom ratio of 15X covering a range from 0.75X to 11.25X. This extraordinary range makes changing lenses unnecessary, allowing you to concentrate on observations.

**Unbelievably wide range of magnifications**
Depending on the combination of eyepiece and objective chosen, the SMZ1500 provides a total magnification range from 3.75X to 540X. This allows you to select the best magnification to match your application, extending from the macro to the micro range.

**Built-in aperture diaphragm**
The SMZ1500 comes with a built-in aperture diaphragm that is useful for observation and photomicrography or CCTV monitoring. Optimum depth of focus can also be achieved by adjusting this diaphragm.

**High-eyepoint eyepieces with built-in diopter adjustment**
All eyepieces are the high eyepoint-type and have a wide field of view; for example, the C-W10X is 22mm. In addition, these eyepieces have built-in diopter adjustment, so the image and the reticle are brought into focus at the same time, making viewing easy, while reducing eyestrain.

The zooming knob features click-stops at 1X intervals from 1X to 11X, eliminating the need to remove your eyes from the eyepiece while changing magnification.
Ergonomic design to provide operational comfort

Comparison of observation postures

Standard eyepiece tube inclined 20°
The standard binocular eyepiece tube is inclined 20°, allowing you to observe samples without having to lean forward. This reduces fatigue during long hours of operation by reducing strain on your neck, shoulders, and back.

In addition to the standard type, you have the option of using other eyepiece tubes and/or eye-level risers to obtain the optimum eyepoint, depending on your height or whether or not an intermediate tube is inserted.

Low-eye-level eyepiece tube
The low eye-level binocular eyepiece tube enables comfortable observation even when using a diascopic stand or when an intermediate tube is inserted.

Tilting eyepiece tube
The tilting binocular eyepiece tube allows continuous adjustment of the eyepiece inclination from 0° to 30°. You can also adjust the eye level a maximum of 157mm (6.2") by swinging the eyepieces up 180° and tilting them.

Eye-level riser
Lets you increase the eyepoint height 25mm per riser for a total of 50mm.

Coaxial coarse/fine focusing unit—especially useful at high magnifications
The SMZ1500 comes with a coaxial coarse/fine focusing unit that travels smoothly along the optical axis. Its new anti-backlash mechanism* makes fine adjustment of focus easier and more accurate. A built-in counterbalance ensures easy movements even when a weighty attachment such as a photomicrographic system is mounted. Furthermore, the focus knob is soft to the touch and located in a comfortable, low position.

* Patent pending in Japan
Top-notch features and functions are easier to use.

Large, streamlined base ensures easy operation
The C-PS160 Plain Stand features a low profile for easy handling of samples. Also, its stage plate is 180mm (7.1") wide, while the distance between the optical axis and the pillar is 160mm (6.3"). In addition to this large clearance, the base has a wide front and smooth curves, so you can rest your arms while working.

Diascopic stands are now easier to use
The new Diascopic Stands, models C-DSD, C-DSS, and C-BD, each have a built-in power supply in a space-saving design. These stands also feature their own fine focus knob* at the front of the streamlined base—in addition to the one at the focusing mount—to make critical adjustment of focus much easier, especially during micromanipulations. Furthermore, their stage glass diameter is a generous 180mm (7.1"), making it possible to view samples in large Petri dishes all the way out to the periphery.

* Patent pending in Japan.
Flexible configuration plus a wide variety of accessories support a broad range of uses.

Three new diascopic stands
These new diascopic stands, models C-DSD, C-DSS, and C-BD, each have a 6V-30W halogen lamp with its own built-in power supply. Although their power supplies are built in, they are designed to keep the surface temperature at a low level, creating an environment ideal for living specimens that are sensitive to rises in temperature. An adapter* for the 12V-100W fiber-optics light source is also available.

High-end diascopic stand is ideal for low contrast specimens
The high-end C-DSD Diascopic Stand features condenser lenses that can be switched between low and high magnifications and allows high N.A. objectives to take advantage of the full potential of their superior resolving power. Furthermore, to answer user requests for high-contrast illumination, Nikon developed the Oblique Coherent Contrast (OCC) Illumination system*, allowing colorless and transparent samples to be observed in high relief.

Standard diascopic stand
The standard C-DSS Diascopic Stand has a light source and a power supply built into its simple body. Obtaining optimum contrast is easy by adjusting the angle of the built-in mirror with the knob.

Diascopic bright/darkfield stand delivers high contrast
The C-BD Diascopic Bright/Darkfield Stand uses a seven-sided toroidal mirror* to reduce stray light** substantially. This stray light would ordinarily cause a decrease in contrast when using short-working distance objectives under darkfield diascopic illumination. But with the C-BD stand, the resulting images have a sufficiently high S/B (signal to background) ratio.

* Patent pending in Japan
** Up to 1/5 that of conventional equipment

The operating principle of the OCC illumination system
In Nikon’s OCC illumination system, the center of the light beam is shielded by the sliding diaphragm placed in a position opposite the objective pupil, allowing coherent light to be projected obliquely onto the sample to produce high contrast.

C-BD Diascopic Bright/Darkfield Stand

C-DSS Diascopic Stand
For sophisticated observation techniques, photomicrography, or digital imaging.

**Photomicrography or monitoring**

By using a beam splitter and adapter, an FX-III Series photomicrographic system, a CCTV camera, or a digital still camera can be attached. The P-IBSD Beam Splitter D has two ports allowing one photomicrographic system and one CCTV camera to be mounted at the same time. The light to the rear port can be switched between 0%, 50%, or 100%, and the light to the side port is switchable between 0% or 50%. With the P-IBSS Beam Splitter S, the light to the side port is switchable between 0% or 50%.

**Beam-split ratios**

<table>
<thead>
<tr>
<th>Beam splitter</th>
<th>Observation</th>
<th>Photomicrography</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-IBSD</td>
<td>100%</td>
<td>0%</td>
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**Epi-fluorescence attachment**

Nikon developed an epi-fluorescence attachment—model P-FLA—for stereoscopic microscopes that allows easy observation of living cells under the fluorescence method such as GFP. Switching between the fluorescence method and brightfield method is quick and easy.

Four filter blocks can be switched using a slide lever. If you add an optional photo port to this attachment, you can mount a photomicrographic system or a CCTV camera without using a beam splitter. Because 100% of the light is delivered to the photo port, bright images are ensured.

**Coaxial episcopic illuminator**

This illuminator—model P-ICI2—uses a 12V-100W fiber-optics light source—the same light source used in fiber illuminators—to deliver bright illumination over the entire sample surface. The thickness of the 1/4\(\lambda\) plate has been reduced, minimizing spherical aberrations in high N.A. objectives.

**Various illuminators**

Various kinds of illuminators such as a Plastic Fiber-Optic Ring Illuminator, Plastic Fiber-Optic Bifurcated Illuminator, 6V-10W/20W Halogen illuminator, or a Fluorescent Ring Illuminator can be used to meet your applications.

**Teaching head and drawing tube**

For teaching purposes or when two or more colleagues are working as a team, a side-by-side teaching head, the P-THSS, is available. The P-IDT drawing tube is also attachable.

**Flexible configuration**

You can add other accessories such as thermo-plates and micromanipulators, depending on your needs.

**4”x4” stage**

Used in combination with an optional extension pillar, the 4”x4” stage allows precise movement in the XY direction, making fine alignment easy during high magnification observations.

**SMZ1500 configured with the epi-fluorescence attachment**

SMZ1500 configured with the coaxial episcopic illuminator

SMZ1500 configured with the plastic fiber-optic ring illuminator

SMZ1500 configured with the plastic fiber-optic bifurcated illuminator

SMZ1500 configured with Narishige micromanipulators.

SMZ1500 configured with Thermo-plate made by TOKAI HIT mounted on SMZ1500.
Specifications

### Optical system
Parallel-optics zoom system

### Total magnification
3.75X–540X (Depending on eyepiece and objective used.)
(When coaxial episcopic illuminator is attached: 4.6X–586X)

### Eyepiece tubes
P-BT Standard Binocular, P-BTL Low Eye-level Binocular, P-BERG Tilting Binocular

### Eyepiece inclination
20° (Standard Binocular and Low Eye-level Binocular), 0–30° (Tilting Binocular)

### Interpupillary distance adjustment
48–75mm (1.9–3.0 in.)

### Eyepieces (with diopter adjustment)
C-W10X (F.N. 22), C-W15X (F.N. 16), C-W20X (F.N. 12.5), C-W30X (F.N. 7)

### Zoom range
0.75X–11.25X

### Zoom ratio
15 : 1

### Objectives
P-HR Plan Apo 0.5X, 1X, 1.6X, P-Plan Apo 1X

### Working distance
Please refer to the table at left.

### Illumination systems
- Parallel-optics zoom system
  - P-IC12 Coaxial Episcopic Illuminator (12V-100W halogen) (Intermediate magnification is 1.5X.)
  - G-L8 6V-10W Illuminator (with Articulated Arm)
  - C-DSL5 6V-20W Illuminator (with Articulated Arm)
  - C-FPS Fluorescent Ring Illuminator
  - C-FIR Plastic Fiber-optic Ring Illuminator (12V-100W halogen)
  - C-FID Plastic Fiber-optic Bifurcated Illuminator (12V-100W halogen)

### Stands
- P-PS160 Plain Stand
- C-DDS Dicoscopic Stand
- C-DSD Dicoscopic Stand
- C-BD Dicoscopic Bright/Darkfield Stand
- P-THS Teaching Head Stand

### Photomicrographic/CCTV system
- Nikon Photomicrographic System FX-III Series or CCTV camera can be attached through Beam Splitter and Adapter. Photo-tube beam-split ratio: please refer to the table on page 15.

### Power consumption
- Diascopic stands: 80W
- C-FPS115 Fluorescent Ring Illuminator: 24W
- C-FPS230 Fluorescent Ring Illuminator: 16W
- Fiber Transformer: 135W

Warning: For possible combinations of accessories, please refer to the system diagram on page 11.

Specifications and equipment are subject to change without any notice or obligation on the part of the manufacturer. April 2002.

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**Specifications**

- **Dimensions**
- **Magnification, Actual Field of View, Working Distance**
- **Objectives**
- **Eyepieces**
- **Total magnification**
- **Eyepiece tubes**
- **Interpupillary distance adjustment**
- **Eyepieces (with diopter adjustment)**
- **Zoom range**
- **Zoom ratio**
- **Objectives**
- **Working distance**
- **Illumination systems**
- **Stands**
- **Photomicrographic/CCTV system**
- **Power consumption**

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**Nikon Photomicrographic System FX-III Series or CCTV camera can be attached through Beam Splitter and Adapter. Photo-tube beam-split ratio: please refer to the table on page 15.**

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**Power consumption**

- Diascopic stands: 80W
- C-FPS115 Fluorescent Ring Illuminator: 24W
- C-FPS230 Fluorescent Ring Illuminator: 16W
- Fiber Transformer: 135W