



These versatile stereo microscopes provide both excellent optical performance, such as high-magnification, high-zoom ratio and high-resolution images, and advanced operability. The expandability of parallel optics makes these models suitable for a wide range of our applications in Switzerland.

Highest-in-class zoom ratio

- Highest-in-class zoom ratio of 12.7:1 (0.63 – 8x) with SMZ1270/1270i
- New WF series objectives optimized for wide view field observation at low magnification

High quality images

- Sharp images with high-level of chromatic aberration correction

Expandable with a wide range of accessories

- A wide range of accessories are available, including eyepiece tubes and stands that are equal to superior specification stereo microscope models are available

High operability for improved Workability

Automatically detects magnification data in combination with the digital camera control unit (SMZ1270i model only)

- Nosepiece offers both widened magnification range and on-axis imaging
- Eyepiece tubes with various inclination angles and slim-type stands minimize user fatigue during observation



SMZ1270i

The same as the SMZ1270 but equipped with intelligent function found in superior models



SMZ1270

Standard stereo microscope with the highest-in-class zooming ratio



SMZ800N

Affordable model with improved operability and basic performance

Ryf SA is pleased to announce the release of **SMZ1270**, a stereo microscope with the largest zoom ratio in its class, **SMZ1270i**, a version of **SMZ1270** with intelligent features, and **SMZ800N** with enhanced optics and operability. With their newly redesigned optics and advanced features, these new stereo microscopes provide incredible optical performance and enhanced operability, enabling researchers to carry out high-magnification, large-zoom-ratio and high-definition imaging with ease. The clarity of the images and improved ease of use will benefit researchers in a variety of fields, from medical to industrial.

Both stereo microscopes have independent optical trains for the right and left eye paths, and thus naturally extend stereoscopic viewing capability. As such, they are used in a variety of fields, including industry (Watch making, Medical devices, etc.), medicine and biology. In the medical and biological fields, these microscopes are used for observing and manipulating live, biological samples. In the industrial field, these instruments are used for research, development and quality control of products. In these fields, stereo microscopes are required to provide advanced optical performance, such as high-magnification imaging and large fields of view, as well as ease of use. Nikon has set a new standard for the basic stereo microscope with the development of the **SMZ1270 / SMZ1270i** model, which features newly developed optics that provide incredibly clear images, the largest zoom ratio of its class, and advanced functionality. Nikon has also developed the **SMZ800N**, an economical model also featuring improved operability performance.



Stereo Microscope SMZ1270/SMZ1270i and SMZ800N
with enhanced optical performance and operation
www.ryfag.ch



Stereomikroskope SMZ1270(i) und SMZ800N Microscopes stéréoscopiques SMZ1270(i) et SMZ800N

Bright and sharp images

Newly developed WF series objectives¹ with dramatically improved chromatic aberration² correction ensures bright images without color fringes throughout the entire field of view. In addition, apochromatic³ and semi-apochromatic optics have been developed for the SMZ1270/1270i and SMZ800N zoom bodies, respectively, resulting in sharp and high-contrast images throughout the whole zoom range.

¹Optional for the SMZ800N.

²Light of different wavelengths (colors) have different refractive powers and form images at different focal points. Blue light focuses closest to the lens, followed by green and red light. This results in a color artifact known as "chromatic aberration" that creates color fringes that deteriorate the clarity of the image.

³Chromatic aberration correction for three wavelengths (colors).

Large zoom range enables seamless viewing from sub-structures to whole specimens

These models are equipped with newly developed zoom optical systems. The SMZ1270 and SMZ1270i offer the highest-in-class zoom ratio of 12.7x (0.63 - 8x). Their low-magnification capability enables observation of a whole 35 mm dish in a single field of view⁴. The large zoom range enables seamless viewing, from minute cellular structures to large biological specimens. The SMZ800N comes with an 8x (1 - 8x) zoom ratio, with magnification levels higher than those offered by conventional models. It is a powerful tool in the field of electronics, where high-precision imaging is required.

⁴With 0.63x zoom magnification, 1x objective and 10x eyepiece, without coaxial episcopic illuminators.

High operability

Mounting two objectives on the optional P-RN2 Nosepiece enables easy objective changeover and seamless observation over a wide magnification range. The optional eyepiece tubes with different inclination angles offer observation with natural posture, even when mounting illumination units and teaching heads for simultaneous dual observation. The new stereo microscopes can be configured with an optional LED Diascopic Illumination Stand equipped with an oblique coherent contrast (OCC) illumination system⁵. OCC is a contrast generating system used in Nikon's advanced Research Stereo Microscope models SMZ25 and SMZ18. The contrast generated by OCC illumination significantly improves observation of fine features present in many biological and industrial samples, such as eggs and embryos, plastic/glass materials and transparent electrodes.

⁵Oblique Coherent Contrast illumination system. This system shields the center beam using a sliding aperture and applies oblique coherent light to samples. This enables observation of colorless and transparent samples by providing contrast to the sample structures.

Expandable functionality with a wide range of accessories

A wide range of accessories from Nikon and Ryf, including illumination units (NKL18b, NKL12c, RL4 LED, Fiber optics RLQ1100 LED, RLQ2600 LED, etc.) stands, tubes and digital cameras, can be flexibly combined with the new stereo microscopes to meet the needs of the individual user and to accommodate various applications in the industrial, medical and biological fields. The SMZ1270i is equipped with an intelligent zoom mechanism that enables automatic detection of the zoom level through either the Camera Control Unit DS-L3 or Nikon's imaging software NIS-Elements. When combined with the optional P-RN12 Intelligent Nosepiece, both the objective lens magnification and variable zoom levels are detected by the DS-L3 unit or NIS-Elements to provide automatic calibration updates for accurate measurements of samples.

Specifications SMZ1270/SMZ1270i

| | | |
|--|--|--|
| Total magnification (with 10x eyepiece) | 3.15 - 160x (depending on objectives) | |
| Zooming body | Optical system | Parallel-optics type (zooming type) |
| | Zoom range | 0.63 - 8x |
| | Zoom ratio | 12.7 : 1 |
| | Detection | Zooming magnification detection, available with SMZ1270i |
| Objectives (working distance) | Plan Apo 0.5x/WF (82.5 mm), Plan Apo 0.75x/WF (107 mm), Plan Apo 1x/WF (70 mm), ED Plan 1.5x/WF (44 mm), ED Plan 2x/WF (35 mm) | |
| Eyepieces (with diopter adjustment) | C-W10xB (F.N. 22), C-W15x (F.N. 16), C-W20x (F.N. 12.5), C-W30x (F.N.7) | |
| | Tubes | P-B Binocular Tube, P-TL100 Trinocular Tube, P-TERG 100 Trinocular Tilting Tube, P-TERG 50 Trinocular Tilting Tube |
| | Stands | (Using with C-FMCN Focusing Mount CN) P-PS32 Plain Stand, P-DSL32 LED Diascopic Illumination Stand, P-DSF32 Fiber Diascopic Illumination Stand.(With built-in coarse focusing mount) C-PSN Plain Stand/CN, C-PSCN Compact Stand/CN, C-DS/C-DSLU Diascopic Stand S, C-LEDS Hybrid LED Stand |
| | Episcopic Illumination Units | P-EFL Epi-fluorescence Attachment, P-CI Coaxial Episcopic Illuminator, LED Ring Illuminators, C-LSL LED Episcopic Illuminator, C-FIR Plastic Fiber-optics Ring Illuminator, C-FID2 Double Arm Fiber Illuminator |
| | Nosepieces | P-RN2 Nosepiece P-RNI2 Intelligent Nosepiece (for SMZ1270i) |
| | Diascopic observation attachment | P-DF LED Darkfield Unit, C-POL Polarizing Attachment |
| | Other accessories | P-IBSS2 Beam Splitter S2, P-THSS Teaching Head, P-IDT Drawing Tube, P-IER Eye-level Riser, Iris Diaphragm, P-SXY XY Stage, C-TRS Tilting Stage, Sliding Stages, Ryf circular illuminators like NK12c and RL4 LED or RLQ 1100 / 2600 LED fiber optical system. |

* Without the coaxial episcopic illuminators.



Wide zoom range

The SMZ1270/1270i offers the highest-in-class zoom ratio of 12.7x (0.63 – 8x). It offers both low-magnification wide viewfield observation during screening and high-magnification observation of microscopic structures (* with 1x objective at the lowest magnification).

The SMZ800N comes with a 1 – 8x zoom range, with higher magnification than conventional models and enables high-resolution observation of 640LP/mm (observed value, using ED Plan Apo 2x at maximum zoom).



High-level chromatic correction

Achromat optics are adapted to the SMZ1270/1270i zoom body and semi-apochromat optics to the SMZ800N to achieve high-level chromatic aberration correction. They offers sharp images without blur or color fringe.

Left: Apochromat optics

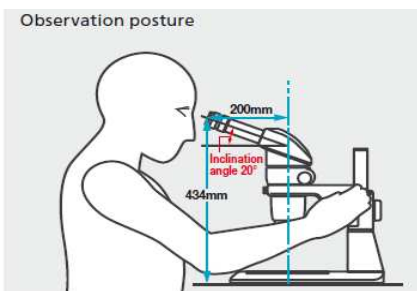
Right: Conventional optics



Ergonomic design

Eyeiece tubes with a range of inclination angles are available for comfortable observation. They offer the optimum eyelevel to suit each user.

In addition, slim type, plain stands and the LED Diascopic Illumination Stand easily facilitate the presentation and removal of specimens.



Intelligent function for status readout

In combination with the Camera Control Unit DS-L3 and imaging software NIS-Elements, the SMZ1270i can detect zoom magnification data. In addition, with the Intelligent Nosepiece P-RN12 attached, data related to the objective in use is also detected. Calibration data is automatically altered, following changes of magnification, to display the appropriate scale and measurement results on the images.



Newly developed objectives

In combination with the newly developed WF series objectives, the SMZ1270/1270i offers a wide and uniformly bright view field even at low magnifications. In addition, a 0.75x objective is now available, expanding the lineup of low magnification objectives



Stereomikroskope SMZ1270(i) und SMZ800N

Microscopes stéréoscopiques SMZ1270(i) et SMZ800N

| | SMZ1270 | SMZ1270i | SMZ800N |
|--|--|---|---|
| Optical system | Parallel-optics type (zooming type) | | |
| Zoom ratio | 12.7 : 1 | | 8 : 1 |
| Zoom range | 0.63 – 8x (0.63/1/2/3/4/6/8x stops) | | 1 – 8x (1/2/3/4/6/8x stops) |
| Total magnification*(when coaxial episcopic illuminator is attached) | 3.15 – 480x (depending on eyepiece and objectives) (with coaxial episcopic illuminator: 15 – 540x) | | 5 – 480x (depending on eyepiece and objectives)(coaxial episcopic illuminator: 22.5 – 540x) |
| Tubes | Eyepiece inclination: 20° (P-BT Standard Binocular) / 15° (P-TL100 Trinocular Tube L) / 0°-30° (P-TERG 100 Trinocular Tilting Tube, P-TERG 50 Trinocular Tilting Tube) | | |
| Eyepieces | C-W10xB (F.N. 22), C-W15x (F.N. 16), C-W20x (F.N. 12.5), C-W30x (F.N. 7) | | |
| Objectives | Plan Apo 0.5x/WF, Plan Apo 0.75x/WF, Plan Apo 1x/WF, ED Plan 1.5x/WF, ED Plan 2x/WF | | Plan Apo 0.5x/WF, Plan Apo 0.75x/WF, Plan Apo 1x/WF, ED Plan 1.5x/WF, ED Plan 2x/WF, Plan 1x, ED Plan 0.75x, Achro 0.5x |
| Working distance (with standard configuration or 1x objective) | 70 mm (with Plan Apo 1x/WF) | | 78mm (with Plan 1x) |
| Weight (approx.) | 9.8 kg (with P-B Standard Binocular Tube + P-DSL32 LED DIA Illumination Base) | 11.9 kg (with P-TERG 100 Trinocular Tilting Tube + P-DSL32 LED DIA Illumination Base) | 6.8 kg (with P-B Standard Binocular Tube + C-PSN Plane Stand) |



Stereo Microscope SMZ1270 with Binocular Tube and LED Diascopic Illumination Stand



Stereo Microscope SMZ800N Plain Stand C-PS Set