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ECLIPSE Ci-L plus Upright Microscope

Ergonomic and comfortable to use
- all day, every day

ECLIPSE *Ci-L* plus

Upright Microscope



Shedding New Light
On **MICROSCOPY**

ECLIPSE Ci-L plus

Upright Microscope

- Paint free
 - Eco Mode
 - LED illuminator
- Complies with VOC regulations and other environmental regulations
* Front resin cover (Black) only



Ergonomic and comfortable to use - all day, every day

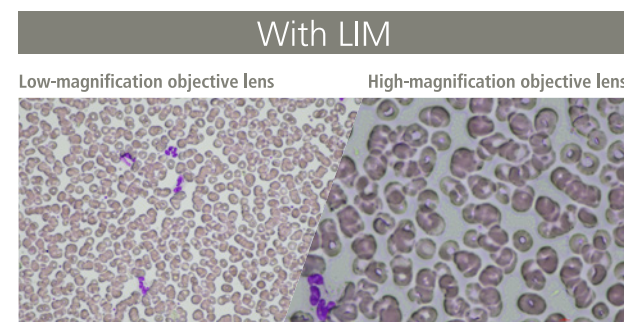
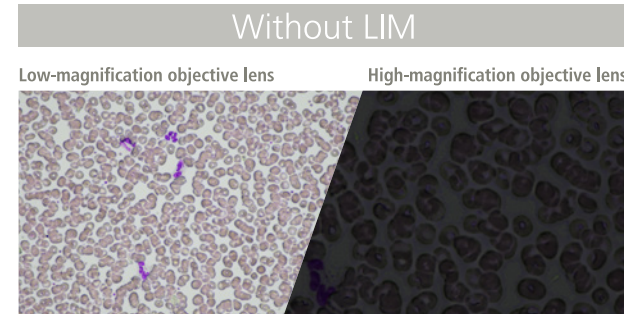
Microscopy observation is indispensable in a variety of situations. Researchers need to carry out tasks with speed and accuracy, all while maintaining concentration over a long period of time.

“The Nikon ECLIPSE Ci-L plus” is a biological microscope designed with a focus on ease-of-use as well as the health and working styles of people involved in research.

With greater comfort and usability, the Ci series brings revolutionary changes to microscopy observation.

! Easy on the eyes, even during extended use

Maintains optimal brightness



The light intensity management (LIM) function developed by Nikon automatically stores any changes to brightness settings. This helps avoid drastic changes in brightness when switching between different magnifications during observation, thereby helping to mitigate eye strain.

! Maintain a natural posture during observation

Ergonomically designed with attention toward eliminating neck, shoulders, and back strain



The eyepiece tube can be inclined and extended, and the angle of the elbow can be adjusted by changing the height of the handle, so that you can always adopt a posture that suits you, thereby reducing physical strain.

Keep the same observation posture with automatic brightness adjustment



The LIM function saves and recalls the optimal brightness level for each objective, eliminating the need to manually adjust the illuminator and change posture every time you switch objective lenses.

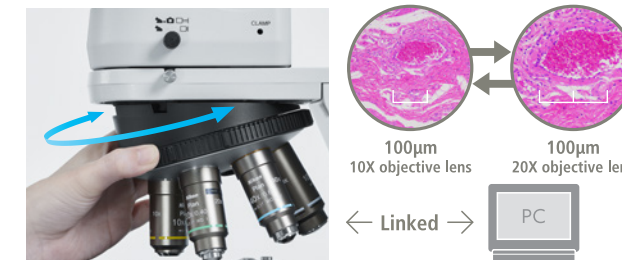
! Enjoy enhanced efficiency during observations

Status Display for easy confirmation at a glance



Quickly and easily check magnification and brightness settings using the display at the base of the microscope without changing your observation posture.

Turning the nosepiece automatically adjusts the scale bar



The scale bar on the PC display changes automatically to match the magnification level, eliminating the need to set the scale manually.

*Sold separately: Software (NIS-Elements D / BR / AR), Nikon recommended camera required

! Objective lenses to meet diverse needs

We offer a wide range of objective lenses that are optimal for laboratory and observation work such as the Plan Fluor10X with its long working distance of 16 mm, and the CFI Plan Apochromat Lambda Series featuring the excellent quality in optical performance.



[Plan Fluor10X]

! Optional accessories

Microscope Digital Camera DS-Fi3

A 5.9 megapixel CMOS image sensor allows for the capture of images up to 2880 x 2048 pixels with color tones that faithfully represent the specimen.



Intuitive camera control with a tablet PC

The 10-inch tablet PC is easy to position next to the microscope. The tablet is equipped with NIS-Elements L software which supports image acquisition and measurements. Tablet operation is easy and intuitive with menu navigation at your fingertips.



Main specifications

Main body		ECLIPSE Ci-L plus
	Optical system	CFI60 Infinity Optical System
	Illumination	High luminescent White LED Illuminator
		Light Intensity Management (LIM) feature, ECO mode*1, Sleep mode*2
	Controls	Image capture button
	Eyepieces (F.O.V mm)	Sleeve diameter Φ30mm · CFI 10X (22) · CFI 12.5X (16) · CFI 15X (14.5) · CFI UW 10X (25)
	Focus	Coaxial Coarse/Fine focusing, Focusing stroke: 30 mm, Coarse: 9.33 mm/rotation, Fine: 0.1 mm/rotation, Fine movement scale 1μm, Coarse motion torque adjustable, Refocusing function
	Nosepieces	· Exclusive Intelligent sextuple nosepiece (with Analyzer slot)
Tubes	F.O.V. 22mm	· C-TB Binocular Tube · C-TE2 Ergonomic Binocular Tube (Eyepiece: Port = 100:0, 50:50) via optional C-TEP2 DSC Port, C-TEP3 DSC Port C-0.55X Inclination angle: 10-30 degree, Extension: up to 40mm
	F.O.V. 25mm	· C-TF Trinocular Tube F (Eyepiece: Port = 100:0, 0:100) · C-TT Trinocular Tube T (Eyepiece: Port = 100:0, 20:80, 0:100)
Stages		Cross travel 78 (X) × 54 (Y) mm, with vernier calibrations, stage handle height and torque adjustable for all stages · C-SR2S Right Handle Stage with 2S Holder · C-CSR Right Handle Ceramic-coated Stage · C-CSR1S Right Handle Ceramic-coated Stage with 1S Holder · C-H2L Specimen Holder 2L(Option) · C-H1L Specimen Holder 1L(Option)
Condenser	Manual	Focusing stroke: 27mm · C-AB Abbe Condenser · C-AR Achromat Condenser · C-DO Darkfield Condenser Oil · C-DD Darkfield Condenser Dry · C-PH Phase Contrast Turret Condenser · C-AA Achromat/ Aplanat · C-SA Slide Achromat Condenser 2-100X · C-SW Swing-out Achromat Condenser 1-100X · C-SWA Swing-out Achromat Condenser 2-100X · C-LAR LWD Achromat Condenser
Observation methods*3		Brightfield, Epi-fluorescence, Darkfield, Phase contrast, Simple polarizing, Sensitive color polarizing
Epi-fluorescence attachment		· CI-FL-2 Epi-fluorescence Attachment (4 filter cubes mountable) · D-FL-2 U-EPI Epi-fluorescence Attachment (6 filter cubes mountable, Terminator mechanism)
Epi-illumination light source		· D-LED1 Fluorescence LED Illumination system
Power consumption		5.0W (Brightfield configuration)
Weight		13.3kg (Binocular standard set)

*1 This is an energy-saving function that turns off the transmitted lighting and liquid crystal display to put the power consumption into a low power consumption state (Sleep mode) when there is no operation for a certain period of time.
*2 While the attached AC adapter is connected to the microscope, it is always energized, but it is in a state of standby with low power consumption. *3 Optional accessories are required for observations other than bright field.

 **Safety Precautions**

TO ENSURE CORRECT USAGE, READ THE CORRESPONDING MANUALS CAREFULLY BEFORE USING YOUR EQUIPMENT.

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ECLIPSE *Ni/Ci*

Upright Microscope



Shedding New Light On **MICROSCOPY**

See the evolution

The ECLIPSE Ni series upright biological microscope supports bioscience studies with enhanced basic performance and flexible system expandability.

The CFI Plan Apochromat Lambda D series objectives are the key to the series' optical performance. Their uniform brightness and superb image quality up to the edge of the large field of view of FOV25 allow seamless image stitching and highly accurate quantitative analysis.

Nikon's proprietary stratum structure allows the epi-fluorescence attachment to be installed in two layers, allowing simultaneous mounting of two different apparatus, such as a fluorescence observation device and a laser photoactivation device, on a single microscope.

The Ni series transcends the concept of conventional upright microscopes and expands the possibilities of advanced research in fields such as bioscience and medicine.

The ECLIPSE Ci series is a compact research microscope which has highly functional and user-friendly features. Nikon provides a wide variety of research microscopes, including for shared use at research facilities and for personal use at laboratories.

Ni

■ System expandability

- Nikon's proprietary stratum structure enables efficient system construction.
- The numerous accessories can be custom combined depending upon application.

■ Optical performance

- CFI Plan Apochromat Lambda D series objectives with high image quality over the entire field of view and corrected chromatic aberration from 405 nm.
- Silicone immersion objectives that enable acquisition of high signal-to-noise ratio images even deep within the sample.

■ Design

- 3D ergo design combines functionality with sophistication.

■ Operability

- Ni-E: Motorized model with automatic change of observation conditions and adjustment of microscope accessories.
- Ni-L: Manual model with some motorized options.
- Most microscope controls can be operated with easy-to-reach buttons on the front of the Ni-E.



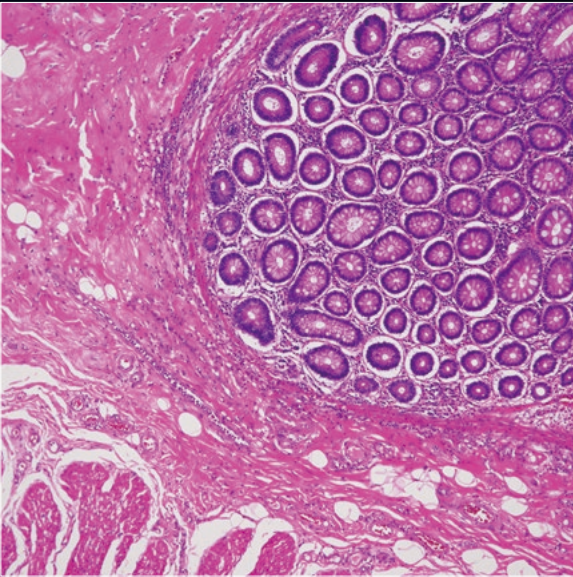
Versatile microscopes meet all demands

Manual and motorized models

To meet diverse user demands for operability, system expandability and motorized control, Nikon provides two Ni series models. The Ni-L is a manual model that is compatible with some motorized accessories and is suitable for high-quality image observation and digital imaging. The Ni-E is a fully motorized model that is efficient for experiments requiring comprehensive control of various devices, such as photoactivation devices and confocal systems.

Ni-L (manual model)

- Ergonomic tube and stage handle height adjustment mechanism allow comfortable viewing positions.
- Stratum structure and sturdy design improve expandability.
- Motorized nosepiece and motorized epi-fluorescence cube turret can be utilized.
- The Ni-L is equipped with an LED light source that achieves color reproducibility equivalent to that of a halogen light source and has a long lifespan of over 50,000 hours.



High color rendering LED light source

The high color rendering LED light source built-into the Ni-L provides natural color reproducibility comparable to a halogen light source, as well as light uniformity, long life, and other advantages associated with LEDs, making it effective for observation of pathological specimens.

Compact design without a protruding lamphouse

The Ni-L has a built-in LED light source for diascopic illumination and the lamphouse does not protrude, so it is short in depth and compact, saving installation space.



Ni-E (motorized model)

- High-precision motorized focusing
- Broad range of motorized accessories that can be used in combination.
- Observation conditions can be changed at a simple push of a button.
- Stratum structure and sturdy design improve expandability.
- 3D ergo design buttons with improved operability are located close together for speedy operations.
- Microscope settings in use can be verified on the display.
- Two focusing mechanism options: focusing stage and focusing nosepiece



Ni-E configured with a motorized epi-fluorescence cube turret and motorized universal condenser

Ni-E provides fully motorized operations

Automatic adjustment with objective changeover

Condenser, aperture and field diaphragm, and ND filter are automatically set to the optimal position during objective changeover. In addition, stage XYZ travel amount per handle rotation and parfocal distance deviation correction are automatically adjusted. Microscope settings can also be manually adjusted.

Change of observation conditions

Selected observation conditions can be designated to individual buttons, enabling changes to be made at the push of a button. This is particularly convenient when reproducing specific observation conditions.

High-precision motorized focusing

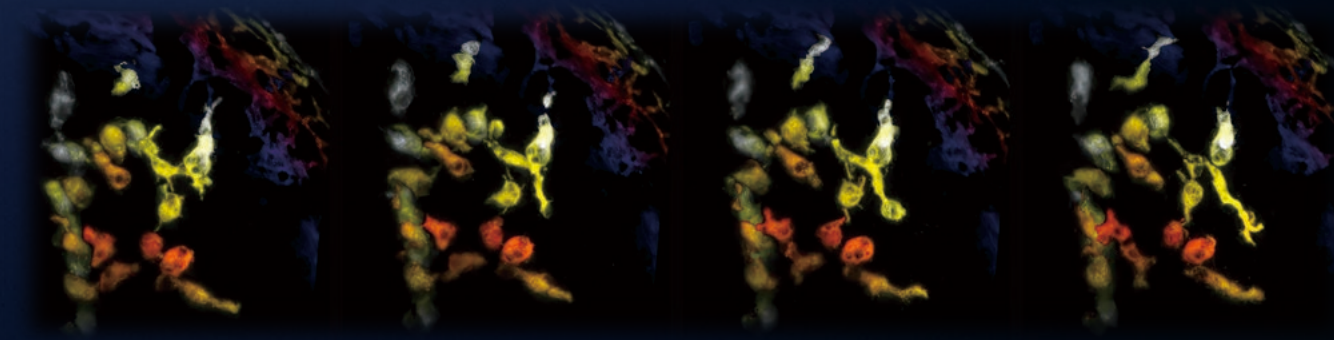
High-precision Z-focus incorporated by the Ni-E provides accurate Z-position information required for use with confocal imaging systems. Individual coarse and fine focus knobs provide enhanced ease of operation.



Expandable system broadens application possibilities

Confocal imaging (Ni-E)

Combining the Ni-E's high-precision Z-focus mechanism with an AX series confocal microscope system allows high-resolution, high-S/N-ratio imaging of 3D structures of organs and cells. The Ni-E has a highly stable structure suitable for mounting a confocal scanner and features a wide luminous flux that enables bright confocal imaging.



3 dimensional reconstruction Z series (color coded by Z depth) of microglial movement in developing zebrafish, obtained with high speed resonant imaging and piezo Z stepping. Courtesy of Dr. E. Burton, Department of Neurology, University of Pittsburgh.

AX/AX R confocal microscope

The AX incorporates a high-definition (up to 8192 x 8192 pixels) galvano scanner. In addition to the galvano scanner, the AX R also incorporates a high-speed (up to 720 fps) and high-resolution (up to 2048 x 2048 pixels) resonant scanner, enabling true simultaneous photoactivation and confocal imaging. AX/AX R allows acquisition of a large area of the sample with a large diagonal field of view of 25mm, reducing phototoxicity.

Focusing mechanism that can be selected according to the sample and application

The focusing mechanism of the Ni-E can be selected from the focusing stage type and the focusing nosepiece type. The focusing nosepiece type enables fixed-stage configuration to meet the requirements of experiments such as *in vivo* imaging.



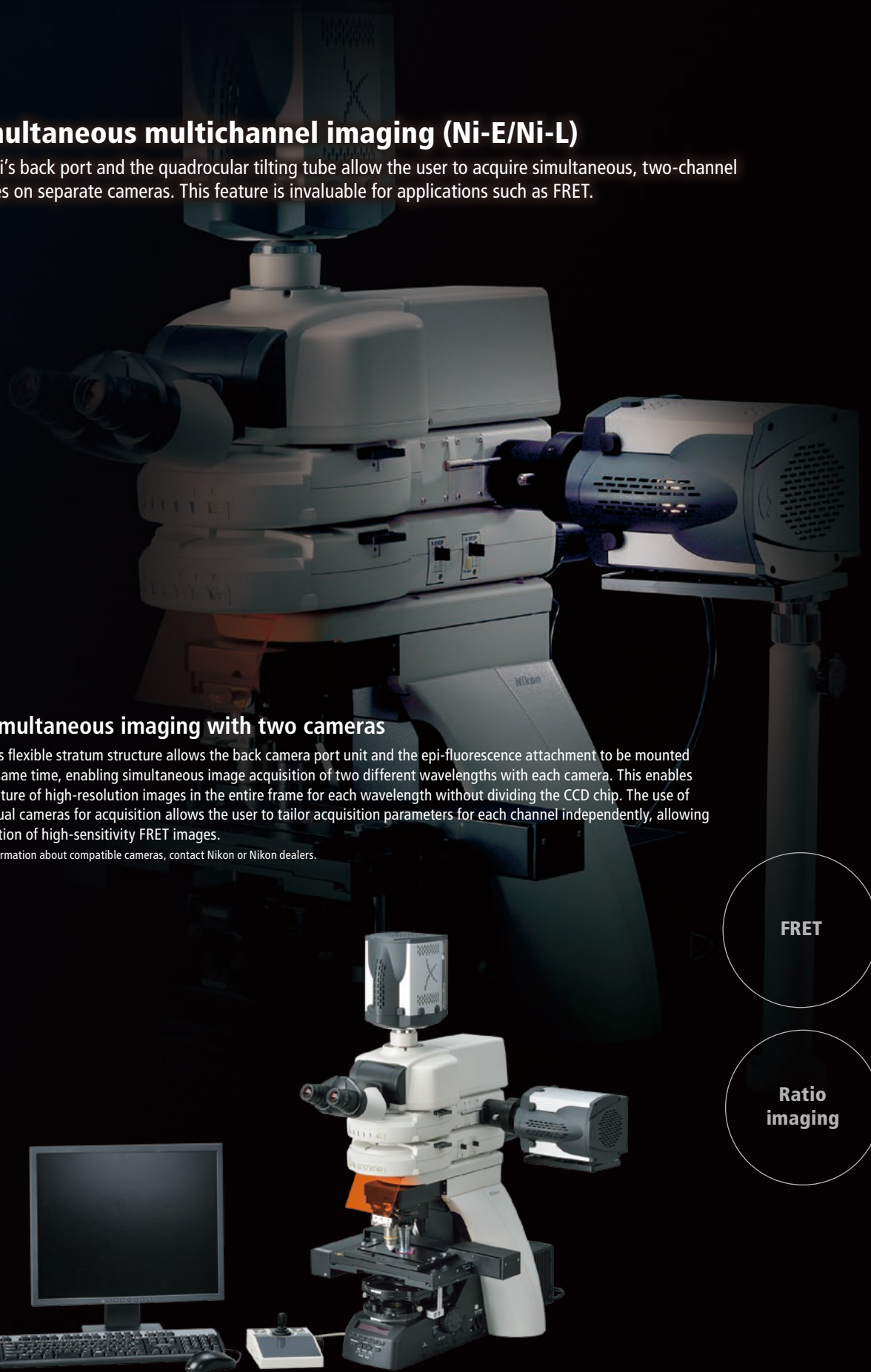
Configuration with Ni-E focusing stage type

Configuration with Ni-E focusing nosepiece type



Simultaneous multichannel imaging (Ni-E/Ni-L)

The Ni's back port and the quadrocular tilting tube allow the user to acquire simultaneous, two-channel images on separate cameras. This feature is invaluable for applications such as FRET.



Simultaneous imaging with two cameras

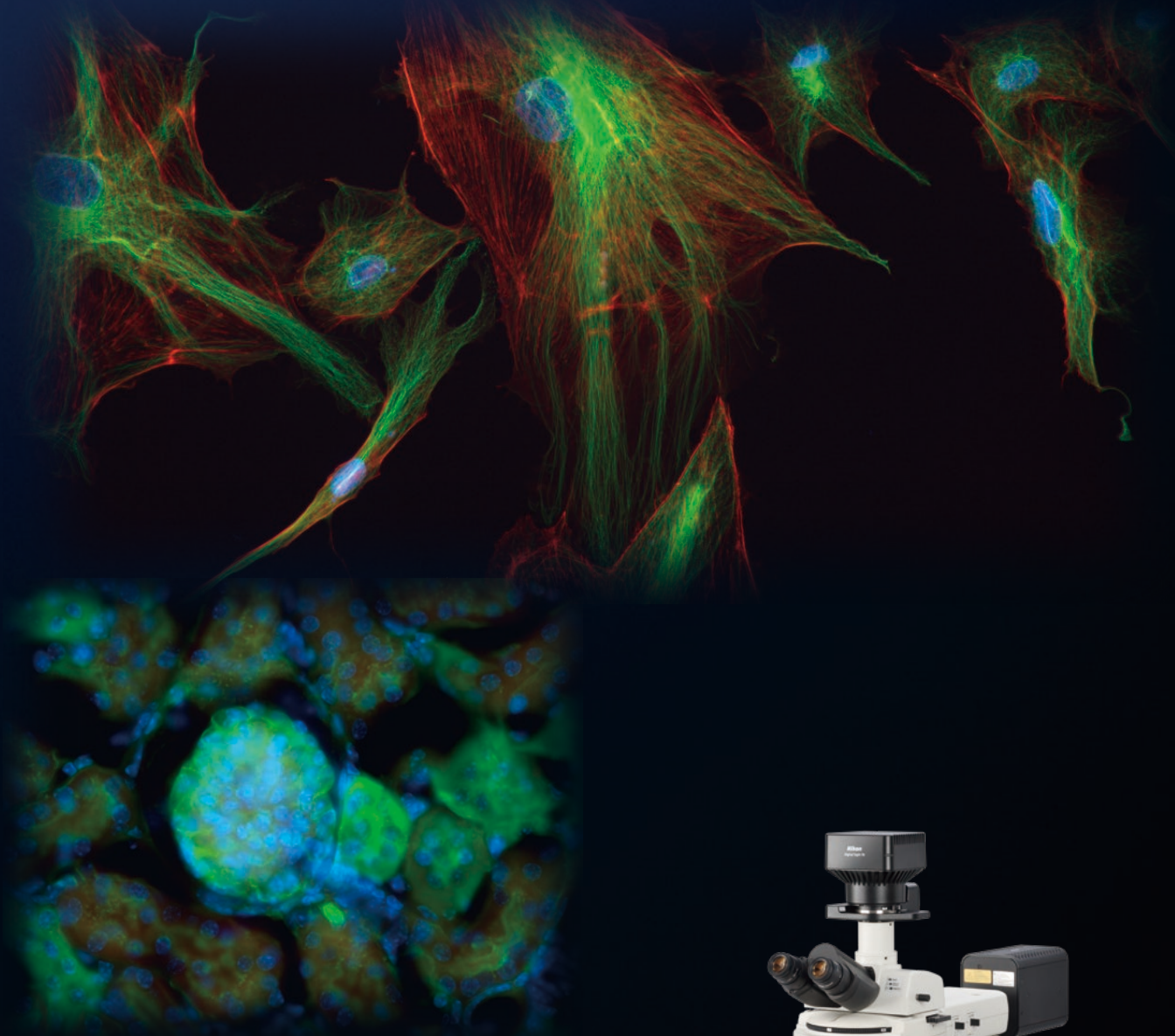
The Ni's flexible stratum structure allows the back camera port unit and the epi-fluorescence attachment to be mounted at the same time, enabling simultaneous image acquisition of two different wavelengths with each camera. This enables the capture of high-resolution images in the entire frame for each wavelength without dividing the CCD chip. The use of individual cameras for acquisition allows the user to tailor acquisition parameters for each channel independently, allowing acquisition of high-sensitivity FRET images.

* For information about compatible cameras, contact Nikon or Nikon dealers.



Enhanced system expandability provides the right solution for your needs

Ni series accessories are segmented by function, allowing you to select required units and flexibly combine them to create lean and effective system configurations.



System configuration for acquiring multi-stained specimen images

The motorized epi-fluorescence cube turret shutter, which helps to reduce photobleaching of specimens, is easily operated with a convenient remote control pad.

Images are automatically acquired by controlling the motorized accessories, including the epi-fluorescence cube turret according to the camera settings such as exposure time, camera gain, and time interval.

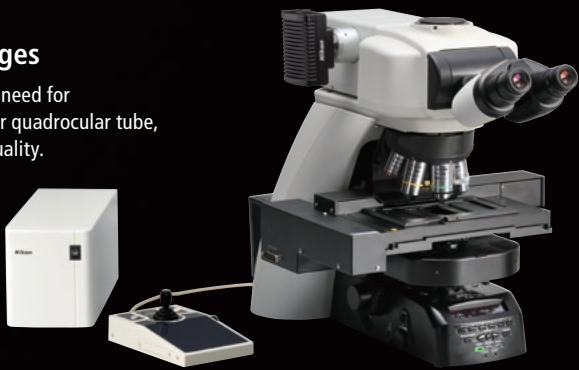
This configuration is recommended for those who conduct mostly fluorescent observations rather than brightfield observations.



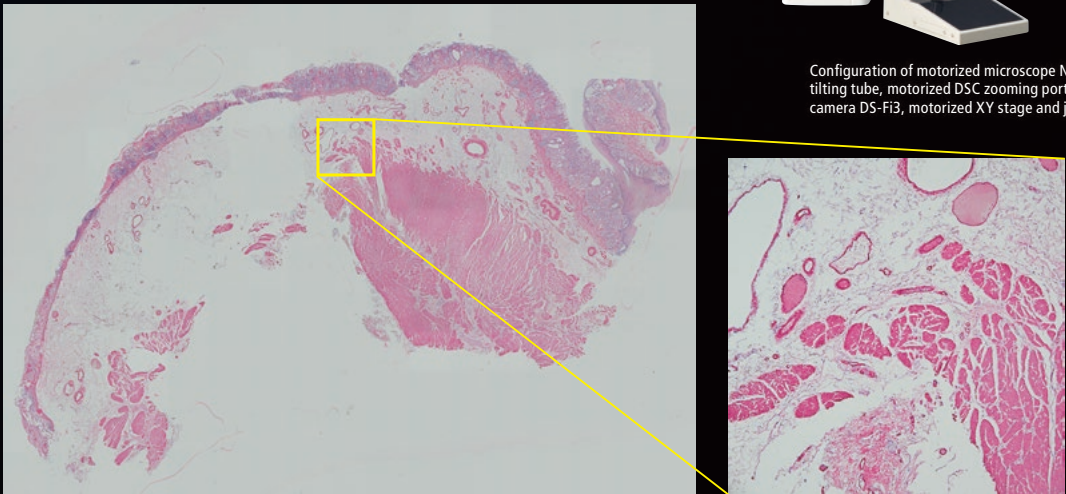
Configuration of manual microscope Ni-L with epi-fluorescence cube turret, epi-fluorescence attachment, motorized DIC sextuple nosepiece, fluorescence LED illumination system and digital camera Digital Sight 10

System configuration for acquiring pathological specimen images

Optimal brightness can be automatically adjusted with objective changeover, eliminating the need for manual adjustment. By controlling the optical zooming of the motorized DSC zooming port for quadocular tube, it is possible to capture images with the desired angle of field while maintaining the image quality.

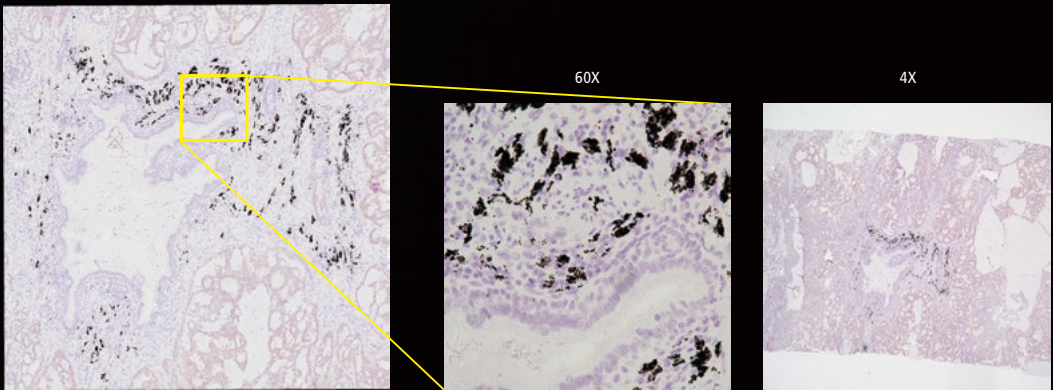


Configuration of motorized microscope Ni-E with motorized quadocular tilting tube, motorized DSC zooming port, motorized ND filter, digital camera DS-Fi3, motorized XY stage and joystick, control box A



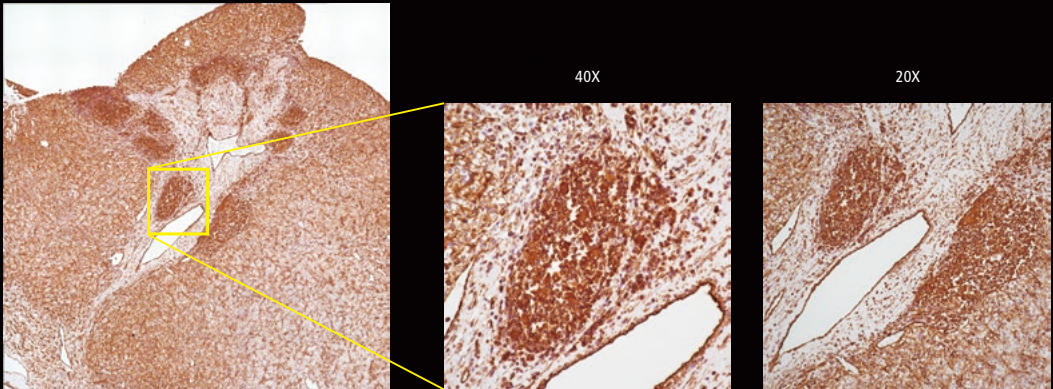
SMA antibody-stained gastric wall (17 x 12 stitched image). Images courtesy of Nichirei Biosciences Inc.

60X (8 x 8 stitched image)



ALK antibody-stained lung cancer. Images courtesy of Nichirei Biosciences Inc.

40X (8 x 8 stitched image)



Vimentin antibody-stained kidney cancer. Images courtesy of Nichirei Biosciences Inc.

Technologies supporting the Ni series

High optical performance

As a light microscope manufacturer, Nikon has cultivated high technical capabilities and confidence. With its advanced technologies extending from optical glass production to lens design, fabrication, coating and processing, Nikon provides unsurpassed optical performance.

High-performance objective lens

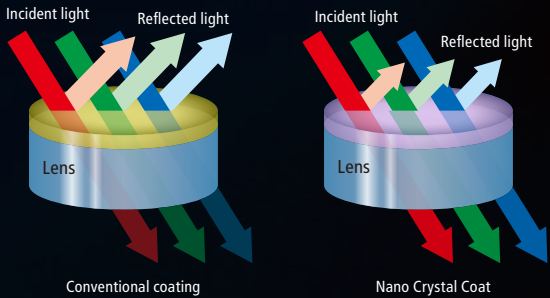
● CFI Plan Apochromat Lambda D series

The high-refractive index glass used in the oil-immersion objectives provides uniform brightness and high image quality up to the periphery of a large 25 mm diagonal field of view, enabling efficient acquisition of seamless stitched images and supports macro imaging of large samples. High transmittance and chromatic aberration correction over a wide wavelength range from 405 nm to 850 nm enable reliable quantitative data acquisition for intensity analysis of nuclear staining. These high NA lenses are ideal for brightfield and DIC observations, as well as fluorescence and confocal observations.



Nano Crystal Coat

This anti-reflective coating that consists of nanometer-size particles is based on semiconductor manufacturing technology and is also used for Nikon camera lenses. The coarse structure with particles arranged in a spongy construction with uniform spaces between them enables extremely low refractive indices.



● Water dipping objective lenses

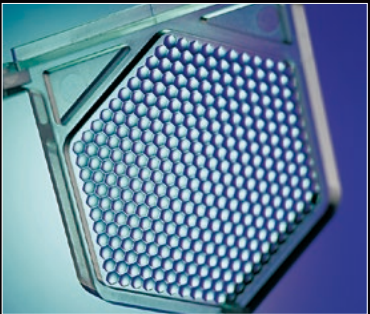
CFI Apochromat NIR 40X W/60X W objectives, with long working distances and high NA and transmission, provide clear observation over the near-IR wavelength range. Axial chromatic aberration is corrected up to the near-IR range, enabling high-resolution images of minute structures of thick samples during IR-DIC observations.

CFI75 Apochromat 25XC W and CFI Plan Achromat100XC W objectives featuring high NA (1.10) and long working distance (2.00 mm at 25XCW, 2.50 mm at 100XCW) are corrected for chromatic aberration in the IR range. These objectives can capture crisp images of deep regions of thick samples by adopting a mechanism to compensate for changes in spherical aberration that occur at different temperatures and observation point depths.



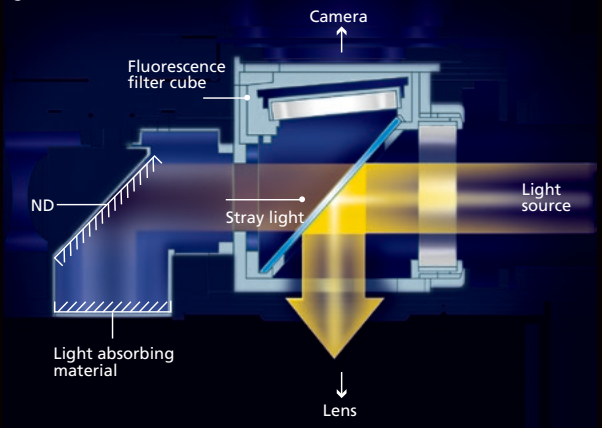
Uniformly bright illumination

The "fly-eye" lens is ideally suited to diascopic illumination optical systems. Uniform and bright illumination up to the viewfield periphery is provided at any magnification.

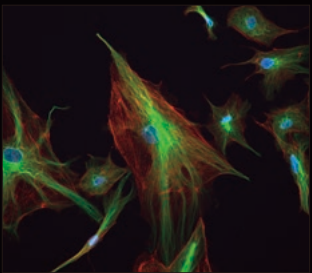


Fluorescence noise elimination

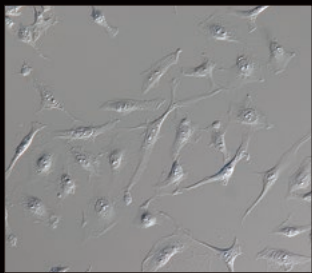
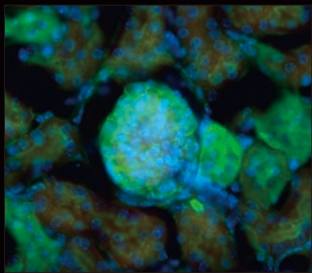
Nikon's proprietary noise terminator mechanism is employed in the epi-fluorescence cube turret and filter cubes. The S/N ratio has been dramatically improved by thoroughly eliminating stray light in the filter cubes, allowing images of weak fluorescent signals to be captured with high contrast and brightness.



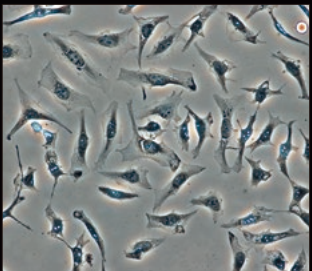
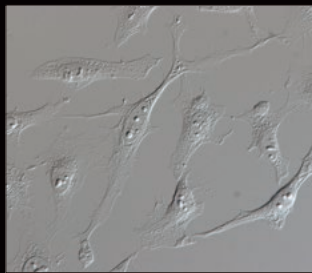
Clear image acquisition with all observation methods



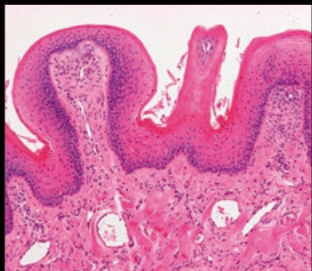
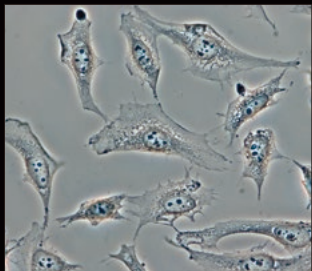
Epi-fluorescence observation



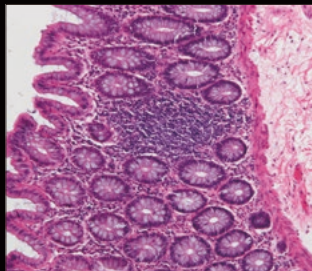
DIC (Differential Interference Contrast) observation



Phase contrast observation



Brightfield observation



Ultimate ease, speed and clarity in imaging

The Ni series can be controlled in conjunction with a Digital Sight series digital camera, facilitating effortless digital imaging. Images can be captured with a dedicated button on the microscope body. Camera control from the software GUI on a PC and the touchscreen on a tablet PC is also possible.

Image capture button

Images can be acquired by simply pressing the image capture button located on the microscope base.



Digital Sight series cameras for microscopes

The optimal camera for your specific imaging needs can be selected from the Digital Sight series of cameras, which offers various features such as high sensitivity, high resolution, high speed image acquisition, and high color reproducibility.

F-mount cameras

● Microscope Camera Digital Sight 10

This 23.90-megapixel, high-definition camera is equipped with a Nikon FX-format CMOS sensor. The high frame rate of up to 66 fps (1920 x 1080 pixels) enables fast focusing. The color/monochrome capture modes can be easily switched by attaching and detaching the filter. Color fluorescent images can be clearly captured with its low-noise design.



● Monochrome Microscope Camera Digital Sight 50M

Digital Sight 50M is a 60-megapixel high-definition camera equipped with a high-sensitivity monochrome CMOS sensor. The ROI mode enables high-speed image capture of up to 225.9 fps (640 x 480 pixels). Its high sensitivity, with a quantum efficiency of 85%, makes it the ideal camera for quantitative analysis of fluorescence intensity changes.



C-mount camera

● Microscope Camera DS-Fi3

Equipped with a 5.9 megapixel CMOS image sensor. It provides high-definition imaging up to 2880 x 2048 pixels and up to 30 fps of fast imaging. With superior color reproduction and high sensitivity, images that are faithful to samples can be acquired during various observation methods, such as brightfield, DIC, phase contrast and epi-fluorescence.



NIS-Elements imaging software

Various packages are available to suit the user's imaging applications, including NIS-Elements L, which allows easy image acquisition, and NIS-Elements Ar, Br, and D, which enable advanced image acquisition through integrated control between a camera and microscope.



● NIS-Elements L

NIS-Elements L imaging software, featuring simple and user-friendly GUI, allows easy camera setting and image capturing using Digital Sight 10 and DS-Fi3 microscope cameras.

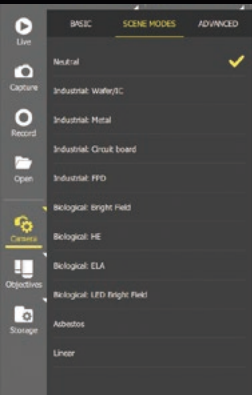
Enables image/movie acquisition and storage using a tablet PC*, facilitating effective sharing of images and presentations. Also supports touch screen operation.

*For information about compatible tablet PCs, contact Nikon.



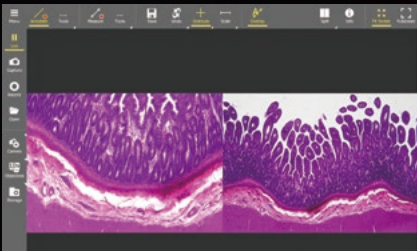
Scene modes

The scene modes function enables the optimal camera setting for each sample and imaging technique by simply choosing the type of illumination or stain.



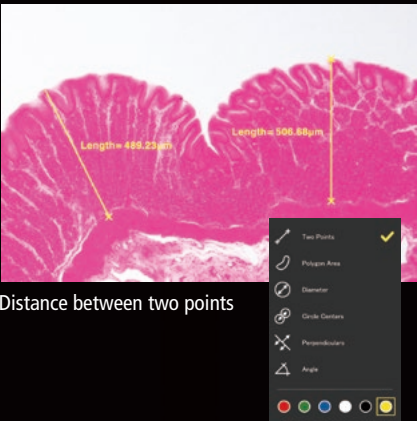
Split-screen display

The split-screen display function enables real-time comparisons between live and captured images by displaying them side-by-side and synchronizing zooming between both images.



Measurement

Simple measurement functions, such as distance measurement between two points, area measurement and angle measurement, are available.



● NIS-Elements Ar, Br, D

The NIS-Elements Ar, Br and D packages seamlessly integrate cameras, peripheral devices, and the motorized functions and accessories of Ni, serving as a powerful yet easy-to-use interface for complex imaging experiments.

NIS-Elements D allows time-lapse, Z-series and multi-point acquisition, while Ar allows multi-dimensional image acquisition of up to 6D (x, y, z, t, multichannel and multipoint) and Br allows up to 4D.

Powerful tools for quick processing, measurement and acquired data management provide a one-step solution for acquisition and analysis.

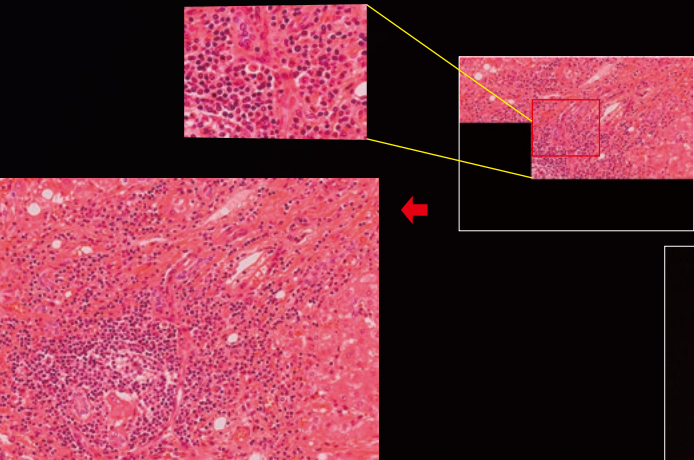
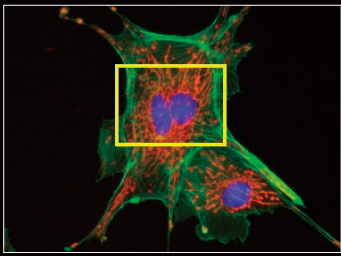
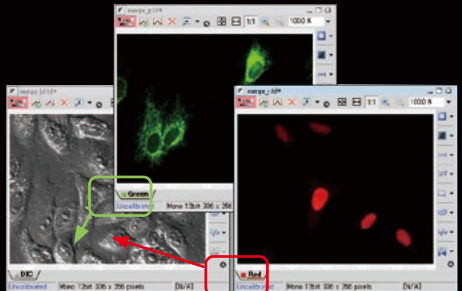


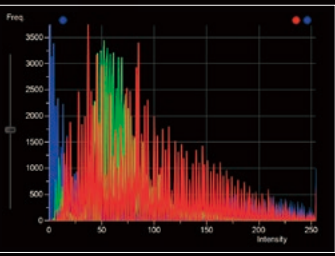
Image stitching (large image)



Histogram



Merge channels



Feel the evolution

Nikon has drawn on its proven optics and mechanical design technologies to develop the compact and high-performance ECLIPSE Ci series research microscope.

Ci-E and Ci-L plus adopt Nikon's unique, high-intensity LED as the light source for diascopic observation. High-quality objectives and high S/N epi-fluorescence attachments provide bright and high contrast fluorescence images. Image capture of specimens is easy and efficient when the microscope is configured with Nikon Digital Sight series cameras. With its high-optical performance and advanced easy control, the ECLIPSE Ci series supports research using a broad range of illumination techniques including phase contrast, darkfield and simple polarizing.

Ci

- **High-intensity, uniform LED illumination (Eco-illumination)**

- Epi-fluorescence attachments equipped with noise terminator mechanism
- Reliable high-performance objectives
- Observation and image capture with comfortable posture
- Motorized magnification switching by the push of a button (Ci-E)
- Automatic adjustment of light intensity and scale display linked to magnification switching
- Simple image capturing by the push of a button on the microscope
- Enables a wide variety of observations



Configuration of Ci-L plus with epi-fluorescence attachment and Digital Sight 10 camera

High quality images powered by Nikon's reputed optical technologies

Nikon's well-reputed optical technologies enable the capture of sharp and high quality images in a wide variety of techniques, including brightfield and epi-fluorescence observations.

The epi-fluorescence attachments of the ECLIPSE Ci series allow weakly fluorescent specimens to be captured with great clarity and brightness.

Epi-fluorescence attachments

The ECLIPSE Ci series has the option of a dedicated compact epi-fluorescence attachment capable of accepting 4 filter cubes. The noise terminator mechanism allows bright, high-contrast, high signal to noise (S/N) ratio fluorescence image capturing.

The name and position of the mounted filter cubes are displayed with phosphorescent labels for easy identification in darkened rooms. The filters or dichroic mirrors in the filter cubes can be easily replaced to create a more specific combination.



CI-FL-2 Epi-fluorescence Attachment

High-optical performance objectives

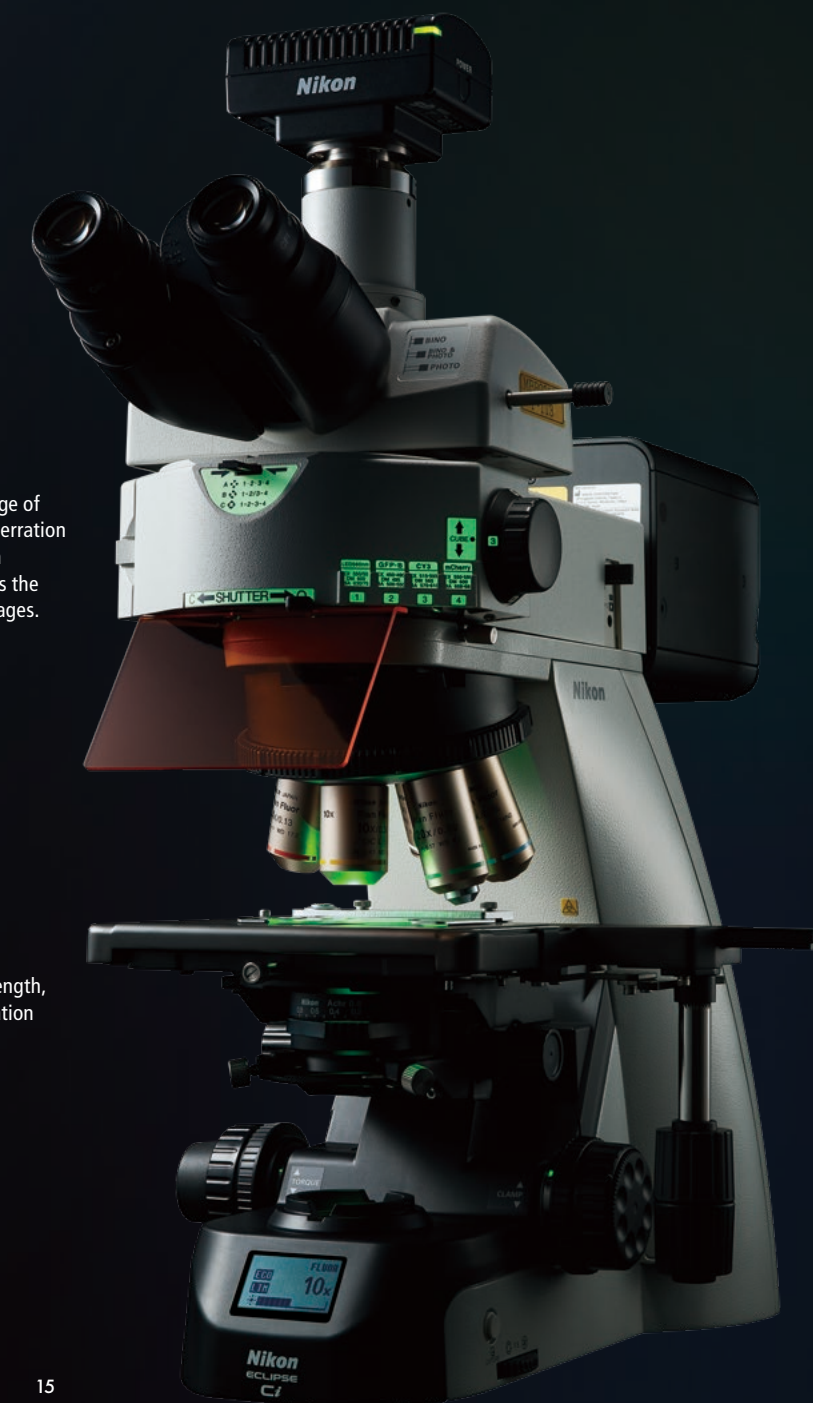
- **CFI Plan Apochromat Lambda D series**

These lenses provide uniform brightness and high image quality up to the edge of the large 25 mm field of view, and their high transmittance and chromatic aberration correction over a wide wavelength range from 405 nm to 850 nm make them ideal for multicolor fluorescence observation. The new design, which expands the effective diameter of the lens, improves NA and provides bright and clear images.



- **CFI Plan Fluor series**

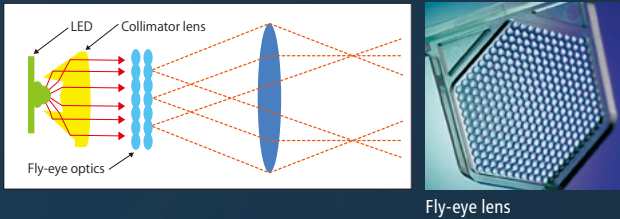
Featuring an extra-high transmission rate, especially in the ultraviolet wavelength, combined with flatness of field, this series is perfect for fluorescence observation and imaging. These objectives can function as multi-purpose objectives for brightfield, fluorescence and simple/sensitive color polarizing observations.



Unparalleled basic performance

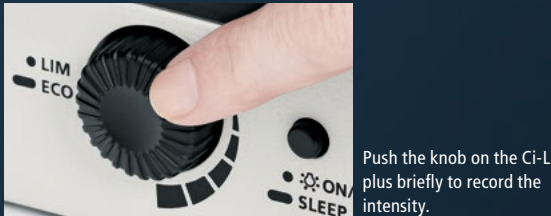
Eco-illumination

By combining a collimator lens, fly-eye optics and LED illumination, bright and uniform images up to the periphery can be obtained. The LED is a low power consumption unit that reduces lamp replacement frequency thanks to its long-life, and provides the same color temperature in every magnification.



Auto light intensity reproduction

The user-defined light intensity for each objective is recorded by pressing a knob for Ci-L plus, and automatically recorded for Ci-E. The light intensity level is automatically recalled and applied when the objective is used again, eliminating the need for manual readjustment.



Automatic scale bar adjustment linked to magnification change

The Ci-E/Ci-L plus nosepiece detects the state of the objective in use and automatically adjusts the scale bar in the image based on the magnification, eliminating the need for manual adjustment.

*Requires dedicated camera and software (optional).



Image capture button

Imaging with the Digital Sight series cameras is possible with the one touch button located on the microscope base.



Adjustable design to suit the user's natural posture

The angle and extension of the ergonomic binocular tube can be adjusted while mounting a camera. The height of the stage and its handle can be adjusted, enabling observation in a comfortable posture.



The ergonomic binocular tube can be inclined from 10 ° to 30 ° and extended up to 40 mm. The tubes can also be lifted in 25 mm increments using the eyelevel riser.



The stage height can be lowered 20 mm from the standard position by adding a nosepiece spacer, facilitating frequent specimen change.



The stage handle height can be changed to ensure a comfortable hand position.

Motorized magnification switching model Ci-E

Nosepiece rotating buttons

The nosepiece can be rotated with one-touch button control. Your two favorite magnifications can be registered*, and one press of the button alternates between these two objectives.

* Using the remote control pad.



Remote control pad

By programming specific buttons to correspond to specific objectives, magnification can be easily changed with a one touch button.



Automatic adjustment linked to objective switching

When the objective is switched, not only is the user-defined light intensity reproduced, but also the top lens element of the condenser automatically swings in or out according to the selected objective.



Versatile diascope observation techniques

● Phase contrast

Eco-illumination has sufficient light intensity for phase contrast microscopy that is used in a wide range of applications including dermatological examinations.



● Darkfield

Enables clear observation of blood or the minute structure of flagella. Dry- and oil-type condensers are available. The expander lens is used to obtain illumination with greater brightness.



Left: C-DD Dark Field Condenser Dry
Right: C-DO Dark Field Condenser Oil

● Simple polarizing

This is ideal for observing bi-refrinent samples such as collagen, amyloids and crystals.

*Two types of analyzer are available: intermediate tube type and nosepiece slider type.



Optional accessories

Accessories for extending the functionality of Ni



Motorized quadrocular tilting tube (Ni-E)
Motorized changeover of optical paths is possible. Eyepiece inclination can be adjusted from 15° to 35°.



Motorized DSC zooming port (Ni-E)
A digital camera can be mounted on the camera port. A motorized 0.6X - 2.0X zoom optical system is incorporated.



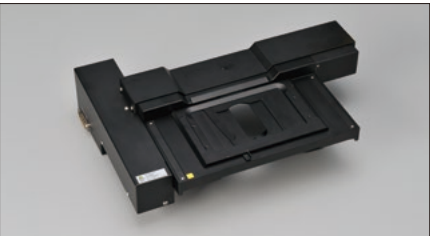
Motorized epi-fluorescence cube turret (Ni-E, Ni-L)
Noise terminator provides high S/N ratio. Six filter cubes can be installed.



Back port unit (Ni-E, Ni-L)
Enables simultaneous acquisition of images with two different wavelengths using two cameras.



D-LEDI Fluorescence LED Illumination system (Ni-E, Ni-L)
An LED light source for fluorescence observation that can be directly attached to an epi-fluorescence attachment in the same way as a lamp house.



Motorized XY stage (Ni-E)
Effective for applications that require highly accurate positioning, such as photoactivation imaging and FISH.



Joystick for motorized stage (Ni-E)
Makes control of motorized XY stage possible.



Ergo controller (Ni-E)
In addition to motorized microscope operation, XYZ control of stage is possible with similar operational ease as that of an actual microscope.



Motorized DIC sextuple nosepiece (Ni-E, Ni-L)
Objective magnification is automatically saved along with the captured image. Built-in prism/analyzer plate slot.



Motorized universal condenser Dry (Ni-E)
High-speed motorized changeover of condenser modules for brightfield, phase contrast, DIC and simple darkfield observations is possible.



Motorized ND filter (Ni-E)
Brightness is automatically optimized with the changeover of the motorized nosepiece. Motorized adjustment of desired brightness is also possible.



Motorized shutter (Ni-E)
Capable of high-speed shutter control, enabling minimum photobleaching of samples.



High color rendering LED lamphouse (Ni-L)
A compact LED light source that provides high intensity and superior color reproducibility. It supports diascopic illumination for brightfield, darkfield, phase contrast, DIC and simple polarizing observations.



Simple remote control pad (Ni-L)
Motorized operation of the nosepiece, epi-fluorescence cube turret and shutter is possible.



Shutter cassette for Ni-L (Ni-L)
By blocking light from the LED light source and autofluorescence, this unit allows acquisition of high S/N fluorescence images without the need to turn off the diascopic illumination.

Teaching heads for Ni-L/Ci

Share specimen images while observing under a microscope

The teaching head allows simultaneous observation of the same field of view observed under a microscope, with the same brightness. The "side-by-side" type and "face-to-face" type are available, and both can be combined.



Teaching unit side by side



Teaching unit face to face

Built-in pointer to indicate the area of interest

- **Long-life LED**
Uses low heat generation and power saving LEDs. It has a longer life than halogen lamps and does not require lamp replacement.

- **Two-color switchable**
The pointer color can be switched between orange and green.

Flexible support for simultaneous observation by multiple users

By combining the "side-by-side" type and the "face-to-face" type, it is possible to configure for simultaneous observation by 3, 5, and 10 people.
* The configuration for 5 and 10 people is for Ni only.



For 3 persons



For 5 persons



For 10 persons

Epi-fluorescence light sources for Ni/Ci

D-LEDI Fluorescence LED illumination system

An eco-friendly light source optimized for fluorescence observation. It is a light source that can be directly mounted on the epi-fluorescence attachment in the same way as a lamp house, and provides sufficient light intensity for fluorescence observation.



D-LEDI Fluorescence LED Illumination system

Wavelength intensity control

Four types of LEDs (with main wavelengths of 385 nm, 475 nm, 550 nm and 621 nm) are equipped to support excitation wavelengths commonly used for fluorescence observation. Using the included controller, the user can simultaneously turn on/off individual, multiple or all wavelength lights. Adjusting the light intensity of each wavelength from 0 to 100% (in 1% step) is also possible.

Control from NIS-Elements software

With NIS-Elements imaging software, light intensity control of each wavelength is possible while keeping their intensity ratios. It also enables the emission of excitation light synchronized with image acquisition, and is effective for time-lapse imaging.

No vibration generation

The D-LEDI adopts a natural cooling system, which does not use cooling fans. This eliminates the generation of vibration and is suitable for high-magnification observation.

Maintenance free

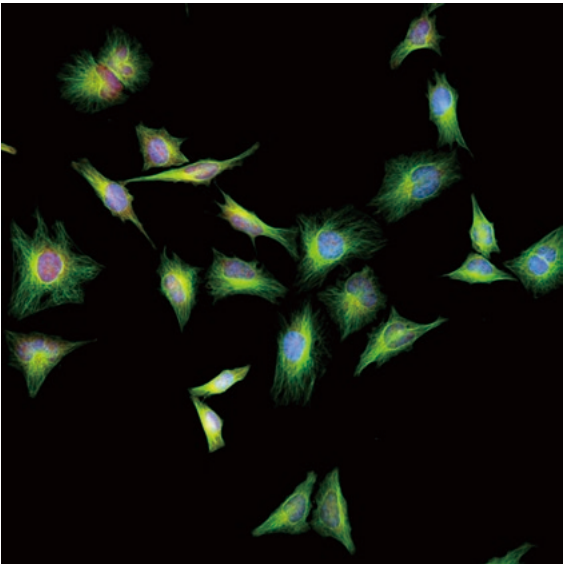
The built-in LEDs have a long life of approximately 20,000-hours, and eliminate the need for frequent lamp replacement which was required with a mercury lamp light source.

Alignment free

With a mercury lamphouse, lamp centering adjustment was required. The LEDs in this light source are rigorously adjusted at the time of manufacture, and do not require a centering process.

Recommended filter cubes

Filter Cubes	Wavelength	Compatible LED
C-LED385	EX390/38, DM420, BA475/90	385 nm
C-LED470	EX470/40, DM500, BA534/55	470 nm
C-LED525	EX525/50, DM560, BA597/58	525 nm
C-LED625	EX621/58, DM660, BA706/73	625 nm



HeLa cells captured with CFI Plan Apochromat Lambda 40XC objective



configured with Ni-L

Objectives for Ni/Ci

Type	Use	Model	Immersion	NA	W.D. (mm)	Cover glass thickness	Correction ring	Spring loaded	Brightfield	Darkfield	DIC	Phase contrast	Polarizing	Fluorescence		
														UV	Visible light	NR
Super Fluor	Brightfield (CFI Super Fluor)	4X		0.20	15.50	—			⊙				△	⊙340	⊙	
		10X		0.50	1.10	0.17		✓	⊙	⊙●	○		△	⊙340	⊙	
		20X		0.75	1.00	0.17		✓	⊙	⊙●	○		△	⊙340	⊙	
		40XC		0.90	0.34-0.26	0.11-0.23	✓	✓	⊙	●	○		△	⊙340	⊙	
		40X Oil	Oil	1.30	0.19	0.17		✓w/stopper	⊙		○		△	⊙340	⊙	
		100XS Oil	Oil	0.50-1.30	0.20	0.17		✓	⊙	⊙●			△	⊙340	⊙	
Plan Fluor	Brightfield (CFI Plan Fluor)	4X		0.13	17.20	—			⊙				△	⊙	⊙	
		10X		0.30	16.00	0.17			⊙	△	○		○	⊙	⊙	
		20X		0.50	2.10	0.17			⊙	⊙●	○		○	⊙	⊙	
		20XC MI	Oil, water, glycerin	0.75	0.51-0.35 0.51-0.34 0.49-0.33	0-0.17	✓	✓	⊙	⊙●	○		○	⊙	⊙	
		40X		0.75	0.66	0.17		✓	⊙	⊙●	○		○	⊙	⊙	
		40X Oil	Oil	1.30	0.24	0.17		✓w/stopper	⊙		○		○	⊙	⊙	
		60XC		0.85	0.40-0.31	0.11-0.23	✓	✓	⊙	●	○		○	⊙	⊙	
		60XS Oil	Oil	0.50-1.25	0.22	0.17		✓	⊙	⊙●	○		○	⊙	⊙	
		100X Oil	Oil	1.30	0.16	0.17		✓w/stopper	⊙		○		○	⊙	⊙	
		100XS Oil	Oil	0.50-1.30	0.16	0.17		✓	⊙	⊙●	○		○	⊙	⊙	
	Phase contrast (CFI Plan Fluor)	DLL 10X		0.30	16.00	0.17			○	△		⊙ PH1		○	○	
		DLL 20X		0.50	2.10	0.17			○	⊙●		⊙ PH1		○	○	
		DLL 40X		0.75	0.66	0.17		✓	○	⊙●		⊙ PH2		○	○	
		DLL 100X Oil	Oil	1.30	0.16	0.17		✓w/stopper	○			⊙ PH3		○	○	
	Apodized phase contrast (CFI Plan Fluor)	ADH 100X Oil	Oil	1.30	0.16	0.17		✓w/stopper	○			⊙ PH3		○	○	
Plan Apochromat	Brightfield (CFI Plan Apo)	Lambda D 2X		0.10	8.50	0/0.17			⊙					⊙CF	⊙	⊙
		Lambda D 4X		0.20	20.00	0/0.17			⊙					⊙	⊙	⊙
		Lambda D 10X		0.45	4.00	0.17			⊙	△	⊙		△	⊙	⊙	⊙
		Lambda D 20X		0.80	0.80	0.17		✓	⊙	●	⊙		△	⊙	⊙	⊙
		Lambda D 40XC		0.95	0.21	0.11-0.23	✓	✓	⊙	●	⊙		△	⊙CF	⊙	⊙
		Lambda D 60X Oil	Oil	1.42	0.15	0.17		✓	⊙		⊙		△	⊙	⊙	⊙
		Lambda D 100X Oil	Oil	1.45	0.13	0.17		✓	⊙		⊙		△	⊙	⊙	⊙
		VC 60XC WI	Water	1.20	0.31-0.28	0.15-0.18	✓	✓	⊙		○		○	⊙	⊙	
		NCG 100X Oil	Oil	1.40	0.16	0		✓	⊙		○		○	△	⊙	

Use: Water dipping *	Model	Immersion	NA	W.D. (mm)	Cover glass thickness	Correction ring	Spring loaded	Brightfield	Darkfield	DIC	Phase contrast	Polarizing	Fluorescence		Near-infrared DIC
													UV	Visible light	
DIC (CFI Plan Fluor)	10X W	Water	0.30	3.50	0			⊙	△	○		○	⊙	⊙	○
IR-DIC (CFI Apo)	NIR 40X W	Water	0.80	3.50	0			⊙	●	○		○	△	⊙	⊙
	NIR 60X W	Water	1.00	2.80	0			⊙	●	○		○		⊙	⊙
DIC (CFI Plan)	100XC W	Water	1.10	2.50	0	✓		⊙	●	○		○		⊙	○
DIC (CFI75)	LWD 16X W	Water	0.80	3.00	0			⊙	●	○		○	○	⊙	○

Note 1. Model name
The below letters, when included in the model names, indicate the respective features.
C: with correction ring
NCG: for use without cover glass
S: with iris
WL: water immersion type
W: water dipping type
MI: multi immersion (oil, water, glycerin) type

Note 2. Cover glass thickness
— : can be used without cover glass
0: use without cover glass

Note 3. Darkfield microscopy
Possible with the following
△: universal condenser (dry) and darkfield ring
○: above and darkfield condenser (dry)
●: darkfield condenser (oil)

Note 4. Phase rings are classified by objective NA
PHL, PH1, PH2, PH3: condenser cassette modules.

Note 5. Fluorescence microscopy (UV)
△: possible with visible light that has a longer wavelength than the excitation light used for DAPI
○: suitable
⊙: recommended for best results
340: high transmittance with an ultraviolet wavelength range of up to 340nm
CF: confocal imaging is possible at 488 nm and above

Note 6.
Brightfield/DIC/Fluorescence (visible light) microscopy
△: possible but not recommended
○: suitable
⊙: recommended for best results

Note 7. Polarizing
△: possible but not recommended
○: suitable
⊙: retardation measurement is possible with a polarizing microscope

* For Ni-E focusing nosepiece type

Ni Specifications

		Ni-E		Ni-L
		Focusing stage type	Focusing nosepiece type	
Main body	Optical system	CFI60 infinity optical system	CFI60 and CFI75 infinity optical systems	CFI60 infinity optical system
	Focusing (stroke from focus point)	Via motorized stage Up/Down movement (Up 2 mm/ Down 13 mm)	Via motorized nosepiece Up/Down movement (Up 13 mm/ Down 2 mm)	Via manual stage Up/Down movement (Up 3 mm/Down 26 mm)
		Built-in linear encoder, Resolution: 0.025 μm Motorized escape and refocus mechanism		
		Coaxial Coarse/Fine focusing		
	Illumination	Halogen light source (12V 100W), high color rendering LED light source*1: 50,000 hours of life*2 (optional) · NI-ND-E Motorized ND Filter (option)		Built-in high color rendering LED light source*1: 50,000 hours of life*2
		Built-in fly-eye lens Built-in NCB11, ND8, ND32 filters (detachable, one additional filter mountable) and diffuser (non-detachable) ND2 filter (option)		Built-in fly-eye lens
	Controls	Transmitted light On/Off switch, Intensity control dial with preset function Image capture button		
		Built-in motorized control switches		
	Power supply unit	· NI-ERG NI Ergo Controller (option)		
		· NI-CTLA External Power Supply Control Box A (for halogen illumination)/ · NI-CTLA2 External Power Supply Control Box A2 (for LED illumination)		
		Built-in for LED illumination NI-CTLB Control Box B is necessary when Motorized/Intelligent options are combined.		
Eyepieces (F.O.V. mm)		· CFI 10X (22) · CFI 12.5X (16) · CFI 15X (14.5) · CFI UW10X (25)		
Tubes	F.O.V. 22 mm (Eyepiece/Port)	· C-TB Binocular Tube · C-TE2 Ergonomic Binocular Tube (100/0, 50/50 via optional C-TEP2 DSC Port, C-TEP3 DSC Port C-0.55X or C-TEPF2.5 DSC Port F2.5X) Inclination angle: 10-30 degree, Extension up to 40 mm		
	F.O.V. 25 mm ^{*3} (Eyepiece/Port)	· C-TF Trinocular Tube F (100/0, 0/100) · C-TT Trinocular Tube T (100/0, 20/80, 0/100) · NI-TT2 Quadrocular Tilting Tube (Eyepiece/Upper port/Rear port: 100/0/0, 0/100/0, 0/0/100) Inclination angle: 15-35 degree		
		· NI-TT2-E Motorized Quadrocular Tilting Tube (Eyepiece/Upper port/Rear port: 100/0/0, 0/100/0, 0/0/100) Inclination angle: 15-35 degree		
Ports (F.O.V. 11 mm)	· C-TEP2 DSC Port for Ergonomic Binocular Tube (with C-mount adapter, 0.7X) · C-TEP3 DSC Port C-0.55X for Ergonomic Binocular Tube (with C-mount adapter, 0.55X) · C-TEPF2.5 DSC Port F2.5X for Ergonomic Binocular Tube (with F-mount adapter, 2.5X) · NI-BPU Back Port Unit (with C-mount adapter, 1.0X) · NI-RPZ DSC Zooming Port for Quadrocular Tube (with C-mount adapter, manual zoom, 0.6X - 2.0X)			
		· NI-RPZ-E Motorized DSC Zooming Port for Quadrocular Tube (with C-mount adapter, motorized zoom, 0.6X - 2.0X)		
Arms	· NI-SAM Standard Arm			
	· NIE-CAM Contact Arm (for Motorized/Intelligent options)			
Nosepieces	Motorized	· NI-N7-E Motorized Septuple Nosepiece · NI-ND6-E Motorized DIC Sextuple Nosepiece	—	· NI-N7-E Motorized Septuple Nosepiece · NI-ND6-E Motorized DIC Sextuple Nosepiece
	Intelligent	· NI-N7-I Intelligent Septuple Nosepiece	—	· NI-N7-I Intelligent Septuple Nosepiece
	Manual	· D-ND6 DIC Sextuple Nosepiece · C-N6 ESD Sextuple Nosepiece ESD · C-N6A Sextuple Nosepiece with Analyzer Slot	· FN-S2N 2 Place Sliding Nosepiece (for CFI60 objectives) Changeover 2 objectives, DIC slider insertable · FN-MN-H CFI 75 Holder (for CFI75 objective) DIC slider insertable · FN-MN-H2 CFI 90 Holder (for CFI90 objective)	· D-ND6 DIC Sextuple Nosepiece · C-N6 ESD Sextuple Nosepiece ESD · C-N6A Sextuple Nosepiece with Analyzer Slot

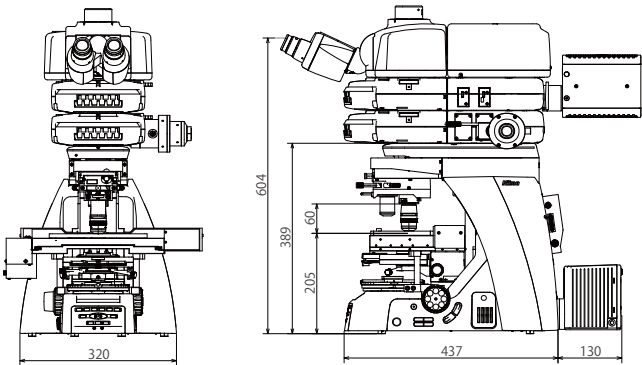
		Ni-E		Ni-L
		Focusing stage type	Focusing nosepiece type	
Stages		· NIE-CSRR2 Right Handle Rotatable Ceramic-coated Stage with 2S Holder Cross travel 78(X) x 54(Y) mm Handle height and torque adjustable	· FN-3PS2 FN1 Standard Stage Cross travel 30(X) x 30(Y) mm	· C-CSR1S Right Handle Ceramic-coated Stage with 1S Holder · C-CSR Right Handle Ceramic-coated Stage · NIU-CSRR2 Right Handle Rotatable Ceramic-coated Stage with 2S Holder Cross travel 78(X) x 54(Y) mm Handle height and torque adjustable
		· NI-S-E Motorized XY Stage Resolution: 0.1 μm · NI-SH-D Dish Holder (option)		
Substages		· NI-SSR Substage (for Motorized Universal Condenser and Rotatable/Motorized stages)	· NI-SSF Substage for Focusing Nosepiece (for LWD condenser and FN1 Standard/Motorized stages)	· NI-SSR Substage (for Rotatable stage) · NI-SS Substage (for Non-rotatable stages)
Condensers (NA)	Motorized	· NI-CUD-E Motorized Universal Condenser Dry (0.88) For DIC, phase contrast, darkfield observations Attached on NI-SSR Substage	—	—
	Manual	· NI-CUD Universal Condenser Dry (0.88) · C-AB Abbe Condenser (0.90) · C-AR Achromat Condenser (0.80) · C-DO Darkfield Condenser Oil (1.20-1.43) · C-DD Darkfield Condenser Dry (0.80-0.95) · C-AA Achromat Aplanatic Condenser (1.40) · C-SA Slide Achromat Condenser 2-100X (0.90) · C-SW Swing-out Achromat Condenser 1-100X (0.90/0.11) · C-SWA Swing-out Achromat Condenser 2-100X (0.90/0.22) · C-LAR LWD Achromat Condenser (0.65) · D-CUO DIC Condenser Oil (1.40)	· FN-C LWD Condenser (0.78) (for DIC and oblique light illumination)	· NI-CUD Universal Condenser Dry (0.88) · C-AB Abbe Condenser (0.90) · C-AR Achromat Condenser (0.80) · C-DO Darkfield Condenser Oil (1.20-1.43) · C-DD Darkfield Condenser Dry (0.80-0.95) · C-AA Achromat Aplanatic Condenser (1.40) · C-SA Slide Achromat Condenser 2-100X (0.90) · C-SW Swing-out Achromat Condenser 1-100X (0.90/0.11) · C-PH Phase Contrast Turret Condenser (0.90)*4 · C-SWA Swing-out Achromat Condenser 2-100X (0.90/0.22) · C-LAR LWD Achromat Condenser (0.65) · D-CUO DIC Condenser Oil (1.40)
	Filter cube turret	6 filter cubes mountable, Noise Terminator mechanism for all turrets · NI-FLT6-E Motorized Epi-fluorescence Cube Turret Motorized shutter, Status check function ⁵ · NI-FLT6-I Intelligent Epi-fluorescence Cube Turret Manual shutter, Status check function ⁵ · NI-FLT6 Epi-fluorescence Cube Turret Manual shutter		
Epi-fluorescence illuminator	Light distribution device	· NI-FLEI-2 Epi-fluorescence Attachment Aperture diaphragm and field diaphragm (Centerable/Detachable)		
	Option	—		· NL-SC Shutter Cassette for Ni-L
Epi-illumination light source		· D-LEDI Fluorescence LED Illumination system		
Power consumption		211W (with max. halogen lamp intensity and full motorized options)	96W (with max. halogen lamp intensity and full motorized options)	Main body: 28W (with max. high color rendering LED intensity) Control Box B: 68W (with full motorized options)
Weight (approx.)		29 kg (Epi-fluorescent configuration with motorized quadrocular tilting tube)	32 kg (Epi-fluorescent configuration with motorized quadrocular tilting tube)	18 kg (Brightfield configuration with ergonomic binocular tube)

*1 Cannot be used for IR-DIC observation.
*2 Estimate value based on Nikon's regulations.
*3 Eyepiece F.O.V.: When used with an expanded configuration such as a double layer of fluorescent cube turrets, eyepiece F.O.V. is 22 mm.
F.O.V. to imaging ports vary depending on the model.
*4 Can only be mounted on the NI-SS Substage.
*5 Status check function: Status of Filter/Nosepiece etc. can be recorded with captured images. Can be displayed on the PC operation screen.

Ni Dimensional diagram

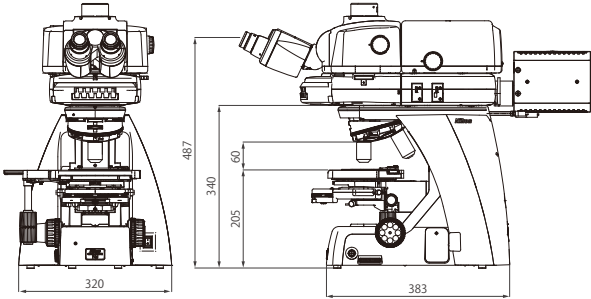
Ni-E (for use with focusing nosepiece)

Configured with a back port unit, two-tiered motorized epi-fluorescence cube turret and motorized quadrocular tilting tube



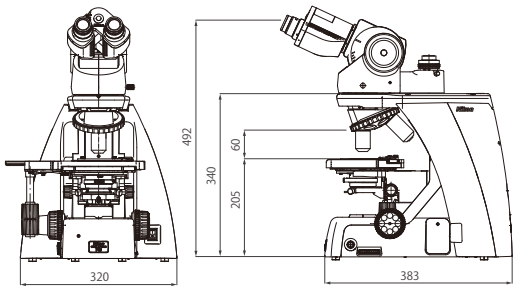
Ni-L

Configured with an epi-fluorescence cube turret and quadrocular tilting tube



Ni-L

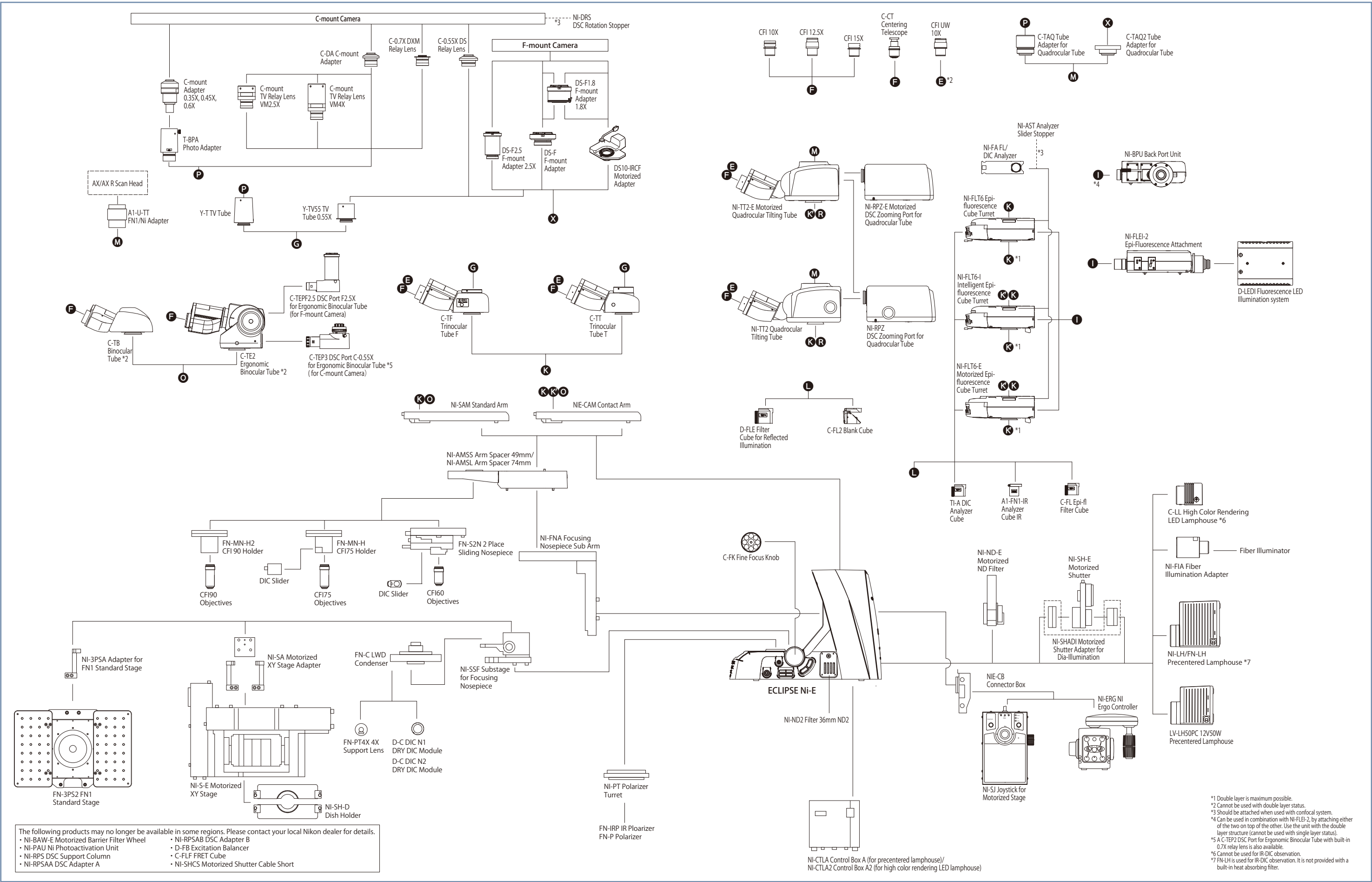
Configured with an ergonomic binocular tube and DSC port



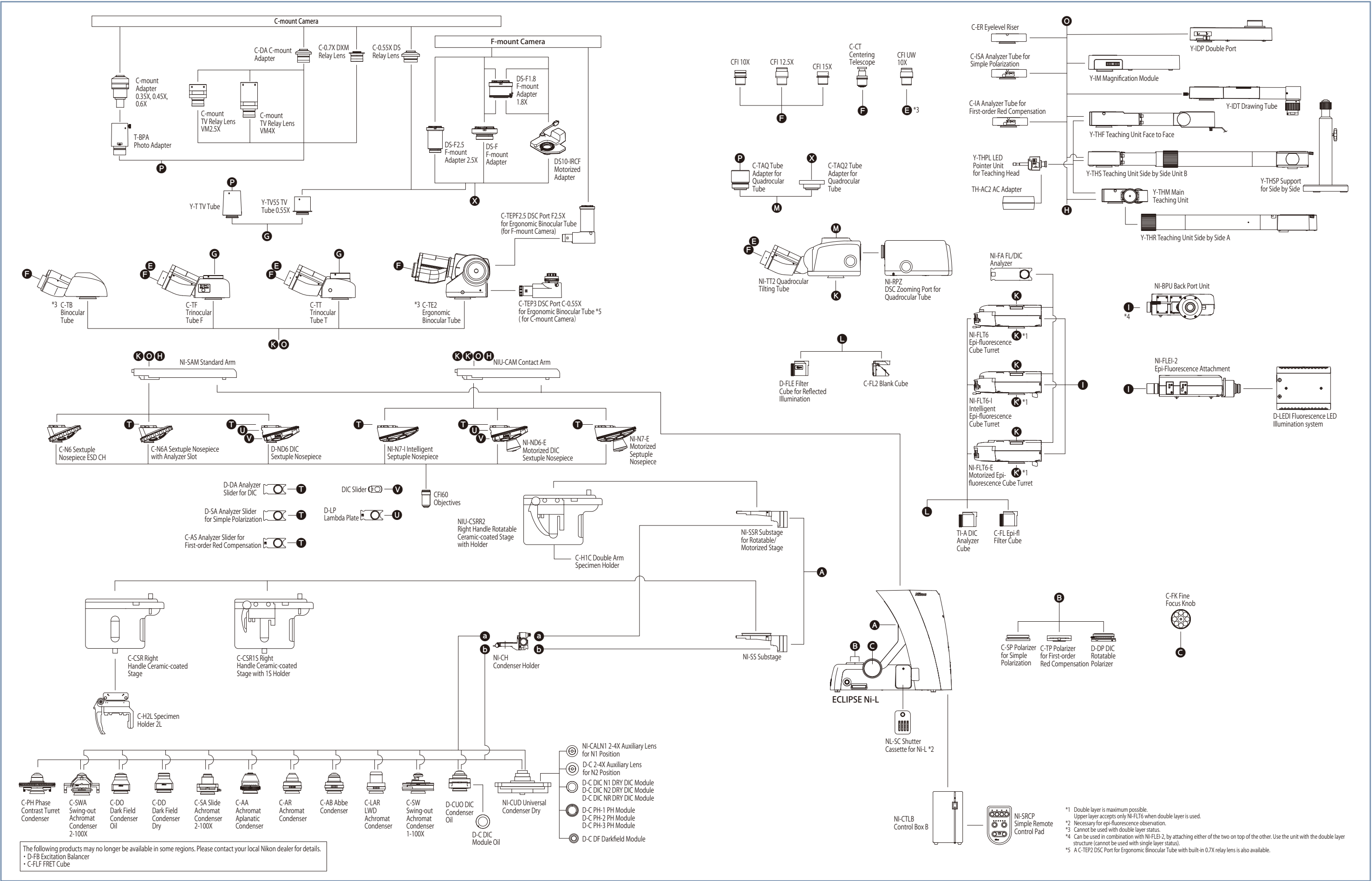
Unit: mm

[illegible]

System diagram: Ni-E focusing nosepiece type



System diagram: Ni-L

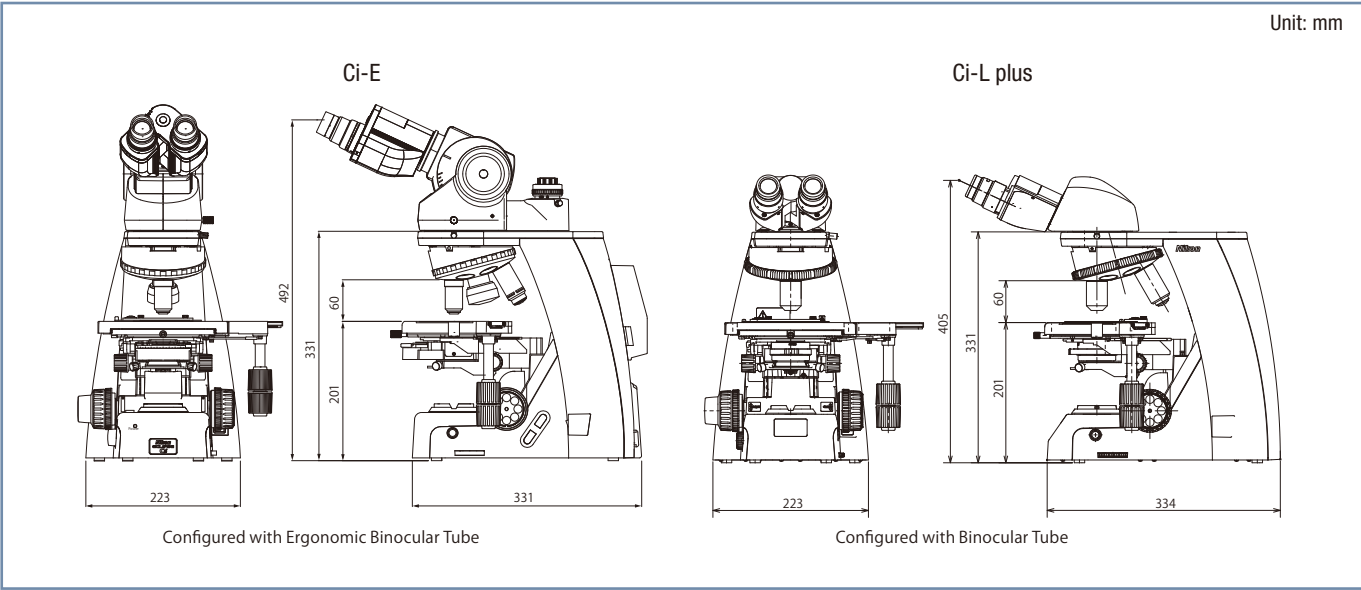


Ci Specifications

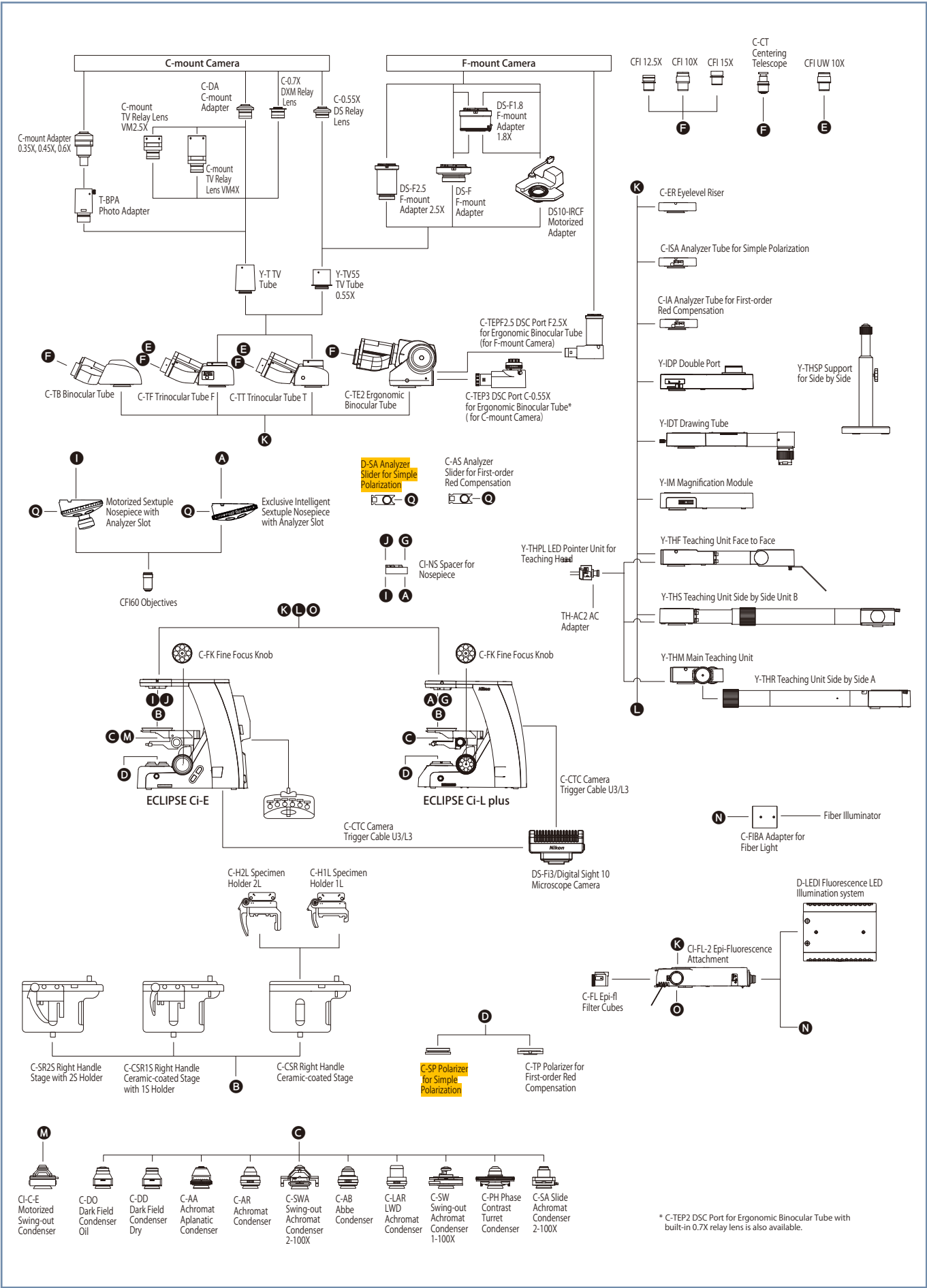
		Ci-E	Ci-L plus
Main body	Optical system	CFI60 Infinity Optical System	
	Illumination	High luminescent White LED Illuminator (Eco-illumination)	
		Automatic intensity reproduction function	Light Intensity Management (LIM) feature for auto intensity reproduction, with ECO mode* ¹ and Sleep mode* ²
	Controls	Image capture button	
		Nosepiece rotating buttons Remote control pad	—
	Eyepieces (F.O.V. mm)	Sleeve diameter ø30mm · CFI 10X (22) · CFI 12.5X (16) · CFI 15X (14.5) · CFI UW 10X (25)	
Tubes	Focusing		Coaxial Coarse/Fine focusing, Focusing stroke: 30 mm, Coarse: 9.33 mm/rotation, Fine: 0.1 mm/rotation, Minimum reading: 1 µm Coarse motion torque adjustable, Refocusing function
	F.O.V. 22 mm	· C-TB Binocular Tube · C-TE2 Ergonomic Binocular Tube (Eyepiece:Port=100:0, 50:50 via optional C-TEP2 DSC Port, C-TEP3 DSC Port C-0.55X or C-TEPF2.5 DSC Port F2.5X) Inclination angle: 10-30 degree, Extension: up to 40 mm	
	F.O.V. 25 mm	· C-TF Trinocular Tube F (Eyepiece:Port=100:0, 0:100) · C-TT Trinocular Tube T (Eyepiece:Port=100:0, 20:80, 0:100)	
Nosepieces		· Motorized Sextuple Nosepiece with Analyzer Slot (Included with Ci-E) Switching between two objectives function* ³	· Exclusive Intelligent Sextuple Nosepiece with Analyzer Slot (Included with Ci-L plus)
Stages		Cross travel 78 (X) × 54 (Y) mm, with vernier calibrations, stage handle height and torque adjustable for all stages · C-SR2S Right Handle Stage with 2S Holder · C-CSR1S Right Handle Ceramic-coated Stage with 1S Holder · C-CSR Right Handle Ceramic-coated Stage (C-H1L Specimen Holder 1L and C-H2L Specimen Holder 2L are optional)	
Condensers (NA)	Motorized	· CI-C-E Motorized Swing-out Condenser (0.90/0.22) Focusing stroke: 27 mm	—
	Manual	Focusing stroke: 27 mm · C-AB Abbe Condenser (0.90) · C-AR Achromat Condenser (0.80) · C-DO Darkfield Condenser Oil (1.20-1.43) · C-DD Darkfield Condenser Dry (0.80-0.95) · C-PH Phase Contrast Turret Condenser (0.90) · C-AA Achromat/ Aplanat Condenser (1.40) · C-SA Slide Achromat Condenser 2-100X (0.90) · C-SW Swing-out Achromat Condenser 1-100X (0.90/0.11) · C-SWA Swing-out Achromat Condenser 2-100X (0.90/0.22) · C-LAR LWD Achromat Condenser (0.65)	
Observation methods* ⁴		Brightfield, Epi-fluorescence, Darkfield, Phase contrast, Simple polarizing, Sensitive color polarizing	
Epi-fluorescence attachment		· CI-FL-2 Epi-fluorescence Attachment (4 filter cubes mountable)	
Epi-fluorescence light source		· D-LEDI Fluorescence LED Illumination system (32W) · C-HGI/HGFIE HG Precentered Fiber Illuminator Intensilight (130W)	
Power consumption		13W (Brightfield configuration)	5W (Brightfield configuration)
Weight (approx.)		15.4 kg (Binocular standard set)	13.3 kg (Binocular standard set)

*1 Energy saving feature that turns off the illumination and LCD to put it into a low power consumption state (sleep mode) after a certain period of inactivity.
*2 Standby state with low power consumption, though it is always energized while the dedicated AC adapter is connected.
*3 Settings with the remote control pad are required.
*4 Optional accessories are required for observations other than brightfield.

Ci Dimensional Diagram



Ci System Diagram



The Digital Sight series and Imaging Software NIS-Elements are not for clinical diagnostic use.

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N.B. Export of the products* in this brochure is controlled under the Japanese Foreign Exchange and Foreign Trade Law.
Appropriate export procedure shall be required in case of export from Japan.
*Products: Hardware and its technical information (including software)
Monitor images are simulated.

 WARNING	TO ENSURE CORRECT USAGE, READ THE CORRESPONDING MANUALS CAREFULLY BEFORE USING YOUR EQUIPMENT.
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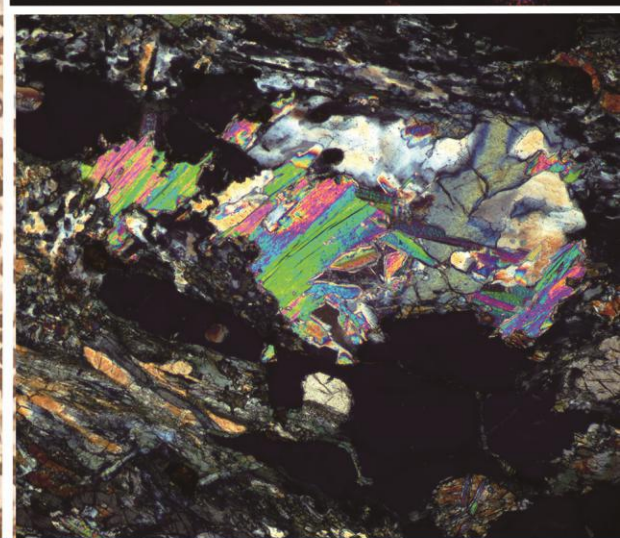
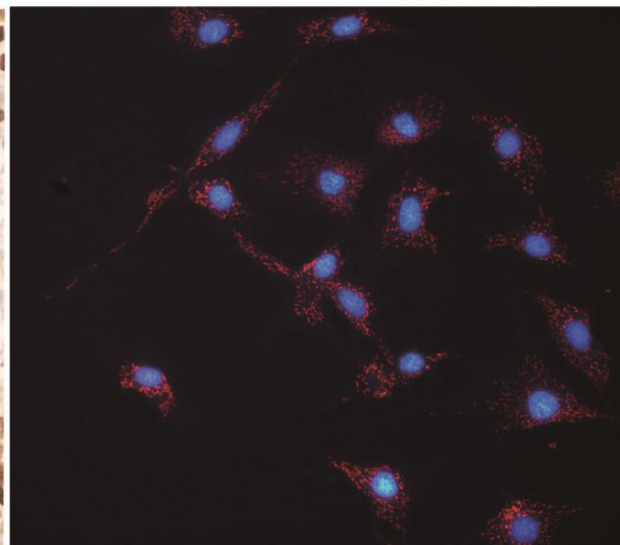
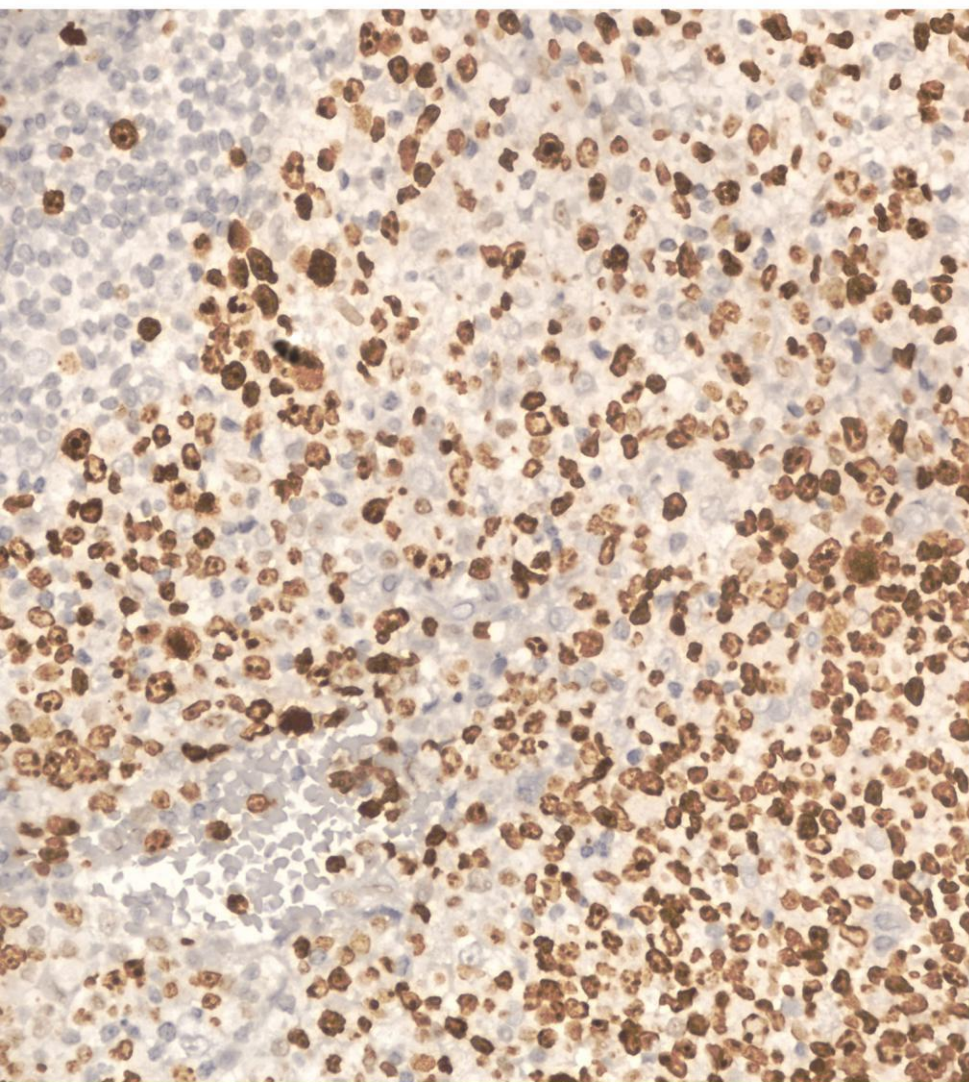
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Intelligent Imaging for Great Discoveries



Microscope camera

- 21MP super high resolution
- 4/3 inch large size sensor, wide field of view

MICROSCOPY IMAGING EXPERT





MSX11 is a super high resolution digital microscope camera with high performance ISP imaging sensor, optimize for microscope imaging applications. It is good to fluorescence imaging, pathology diagnose, metallurgical analysis, stereo observation and other microscope observation.

Features:

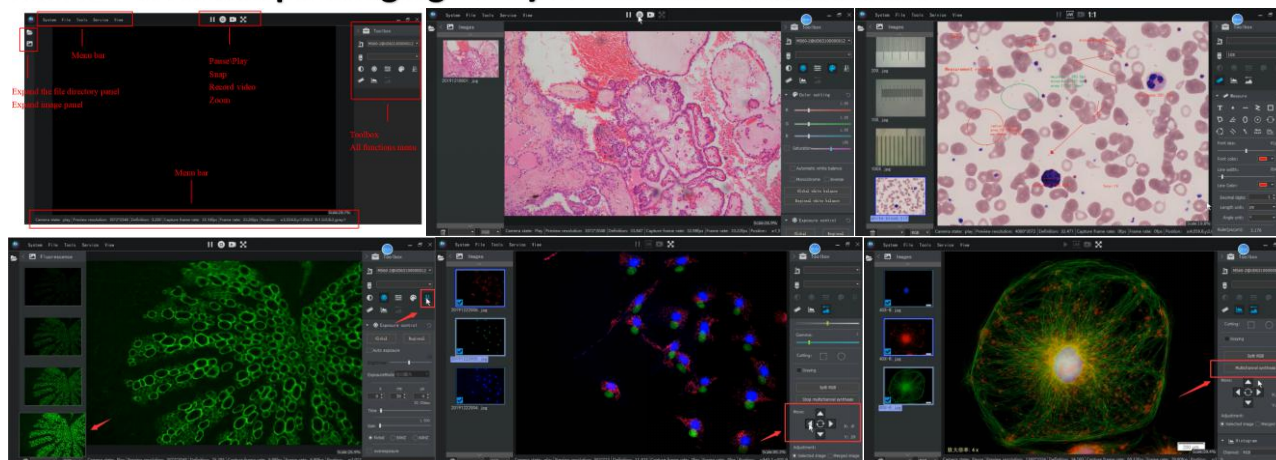
- ISP image processing sensor
- Outstanding color reproduction and details processing
- High sensitivity for fluorescence
- High efficiency data processing, max 21fps under full resolution

Specification

Item	MSX11	A/D convert	12Bit
Effective resolution	21 megapixels	Image cache	128MB
Resolution	5280 × 3956	Exposure	Manual / Auto / Zone
Sensor size	4/3"	White balance	Manual/ One push / Zone
Pixel size	3.3μm×3.3μm	Image format	TIF,BMP,JPG,RAW
Max frame rate	21fps	Software port	DirectShow / TWAIN
Scanning mode	Progressive / continuous	Operating OS	Windows XP 32bit; Windows 7/8/10 32/64bit
Trigger	Software	Data port	USB3.0 Btype, 5Gb/s
Shutter	Electronic rolling	Camera port	C-mount
Exposure	23μs - 26s	Power supply	USB 5V power supply
Effective gain	1 - 16x	Work surrounding	Temperature: 0 - 50℃; humidity: 10% - 90%RH
Spectral response	380nm - 650nm	Shell size	Ø108.5mm×106.5mm×62.5mm



MSHOT Microscope Imaging Analysis Software Function list



Featured functions	Timelapse, Burst Overexposure correction Smart Denoise Anti-flicker: 50Hz, 60Hz Counting point Dynamic multi-images merge (merging max. 7 different exposure images to one better image, merging different channel fluorescence images to one under live) System logs & account control Connect 4 cameras ones time
Basic functions	Auto image splicing Auto extend depth of field Preview, capture image & record video Exposure controls: Auto exposure, Exposure time, Global & Regional exposure, Gain Color adjustment: Automatic white balance, Global & Regional white balance, Monochrome, Invert, RGB separate adjustment, Saturation. Image setting: Resolution: Preview resolution& Capture resolution, ROI: Fast ROI Frame rate : Normal speed, high speed Image Flip : Horizontal Flip, Vertical Image color depth: 8bit, 12bit (16bit for FIT image) Measurement & calibration
Fluorescence imaging controls	Histogram (Maximum value & Minimum value adjustment, RGB channel, Input levels & Output levels), Dynamic fluorescence merge, Merge channels, Shifting correction, Split RGB channel, Quickly RGB dye, Graying, Line profile
Dynamic image processing	Gamma, Contrast, Sharpness, Denoise, Multi-image denoise
Static image processing	Brightness, Contrast, Color phase, Saturation, Gamma, Smart brightness
Measurement tools	Text, Counting point, Straight Line, Segment Line, Rectangle, Polygon, Angle, Ellipse, Circle, Diameter Circle, Perimeter Circle, Parallel Line, Arrow, Scale Bar, Line Profile, Scale bar
Data	Export data to Excel



Shedding New Light On **MICROSCOPY**



Microscope objectives

Our objectives help you focus on yours

Nikon is a leader in the development and manufacture of optical and digital imaging technology for advanced science and clinical research. With over a 100-year history of optical excellence, Nikon is committed to accelerating innovation in science and clinical imaging to improve healthcare and provide a better quality of life.



Nikon's first microscope, released in 1925

The switch from traditional film photography to digital imaging was a major milestone in the field of microscopy, opening up new possibilities in both application and technology. Introduction of digital imaging spurred significant technological changes including the development of objectives with enhanced optical quality and functionality to meet the new demands. Objective lenses are arguably the most important element in the microscope and Nikon continues to invest heavily in the development of objectives to meet the changing demands of science. Explore some of Nikon's newest developments in high-performance objectives in this brochure.



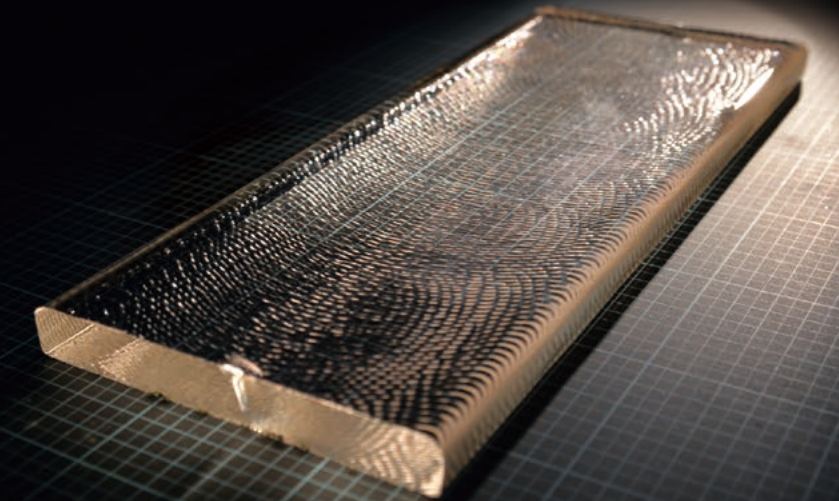
In tireless pursuit of the highest quality

Each Nikon microscope objective is precision-crafted to provide the highest level of clarity and overall optical performance. World-class Nikon objectives, including the renowned CFI60 infinity optical system, deliver brilliant images of breathtaking sharpness and clarity, from ultralow to the highest magnifications.

The initial melting process after blending glass raw materials

It Starts with the Glass

Nikon has been developing optical glass since its inception in 1917, and to this day, wholly owns and formulates all of its glass. Optical glass starts as an ingot (shown on right) which is formed by blending rare earth elements and repeated melting, shaping and slow cooling to achieve a target refractive index. The glass ingots are precision-cut, polished and coated to produce lens elements for the objective.



Mastering Excellence

The front lens of high-performance objectives is hand-polished by Nikon's most highly skilled experts (shown on left), a technique requiring more than a decade to master.

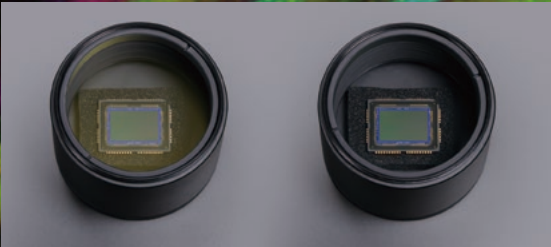
By controlling the entire manufacturing process from glass formulation to assembly and alignment of lens elements, Nikon ensures the highest quality and performance of its objectives.

Objectives Inspired by Your Science

Produced to exacting standards, Nikon's objectives provide exceptional detail and clarity. The highest level of image quality can be achieved whether it be for routine tasks or cutting-edge research.

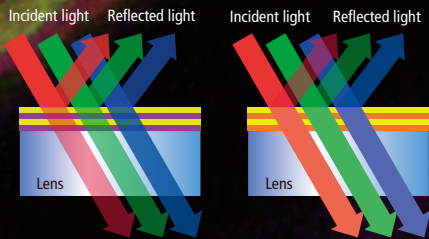
Anti-Reflective Nano Crystal Coat

Nano Crystal Coat is ultra-low refractive index thin film technology that applies a nanoparticle film used for the projection lens of Nikon's semiconductor manufacturing equipment. An extremely high antireflection effect is achieved by forming a low-density film with particles of a few nanometers to a dozen nanometers. It also lowers the reflection of vertically incident light compared to conventional antireflection film, achieves extremely high transmittance in a wide wavelength range, has an unprecedented effect with respect to ghosting and flares caused by obliquely incident light.



Conventional anti-reflection multilayer film

Nano Crystal Coat



Conventional multi-layer coating

Nano Crystal Coat

Cleared Tissue Imaging

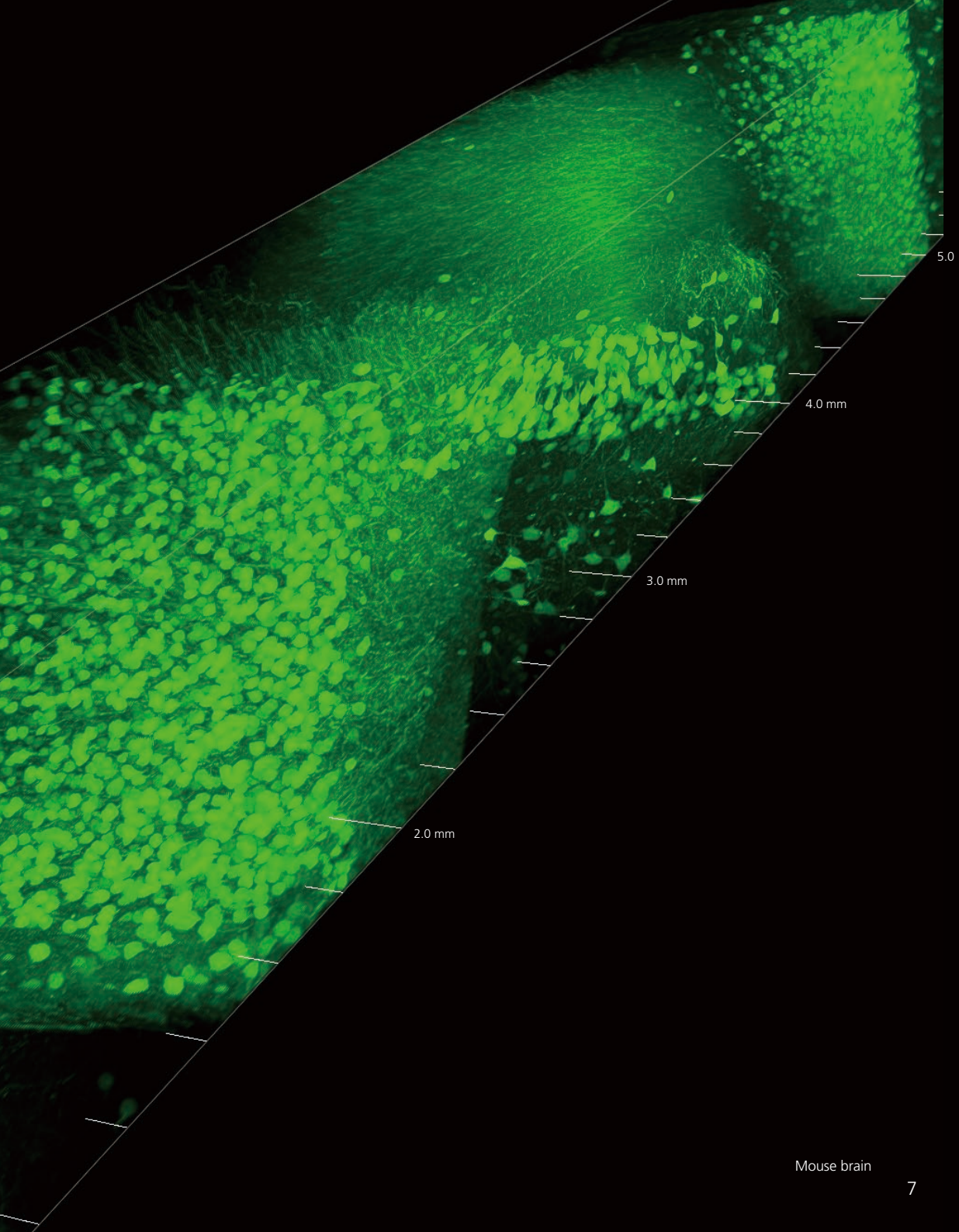


CFI90 20XC Glyc

Designed for deep imaging of cleared tissues

The unique CFI90 design results in an incredibly high N.A. while maintaining a large field of view and ultra-long working distance. Incorporates a correction collar for compensating for different refractive indices of clearing agents.

- NA: 1.00, WD: 8.20 mm
- Chromatic aberration correction from the visible to IR range
- High-transmittance Nano Crystal Coat
- Correction collar for spherical aberration correction



Mouse brain

Cleared Tissue Imaging



CFI Plan Apo 10XC Glyc

Compatible with a wide range of immersion media and clearing agents

In addition to water and immersion oil, this objective lens is compatible with a variety of tissue clearing agents. The lens also features chromatic aberration correction over a broad spectral range and is compatible with the Ti2 inverted microscope.

- NA: 0.50, WD: 5.50 mm (upright) / 2.00 mm (inverted)
- Chromatic aberration correction from the visible to IR range
- High-transmittance Nano Crystal Coat
- Correction collar for spherical aberration correction



Zebrafish larva

Multiphoton Imaging

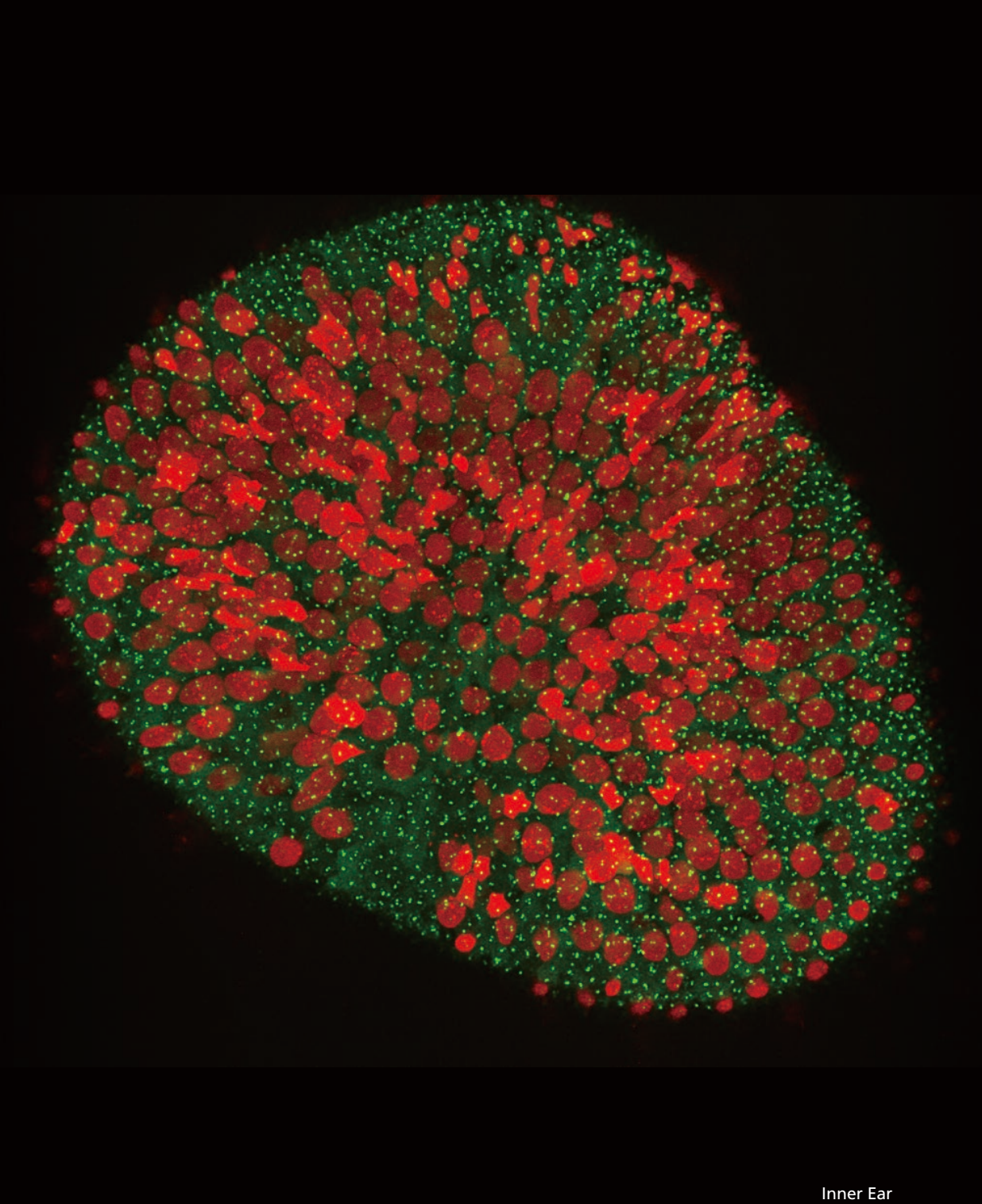


CFI75 Apo 25XC W 1300

Developed for deep brain applications

Best in class objective for multiphoton and electrophysiology applications. Offers ultra-long working distance and incredibly high N.A. for exceptional results every time.

- NA: 1.10, WD: 2.00 mm
- Chromatic aberration correction from the visible to near IR range
- High-transmittance Nano Crystal Coat
- Correction collar for spherical aberration correction



Inner Ear

Multiphoton Imaging

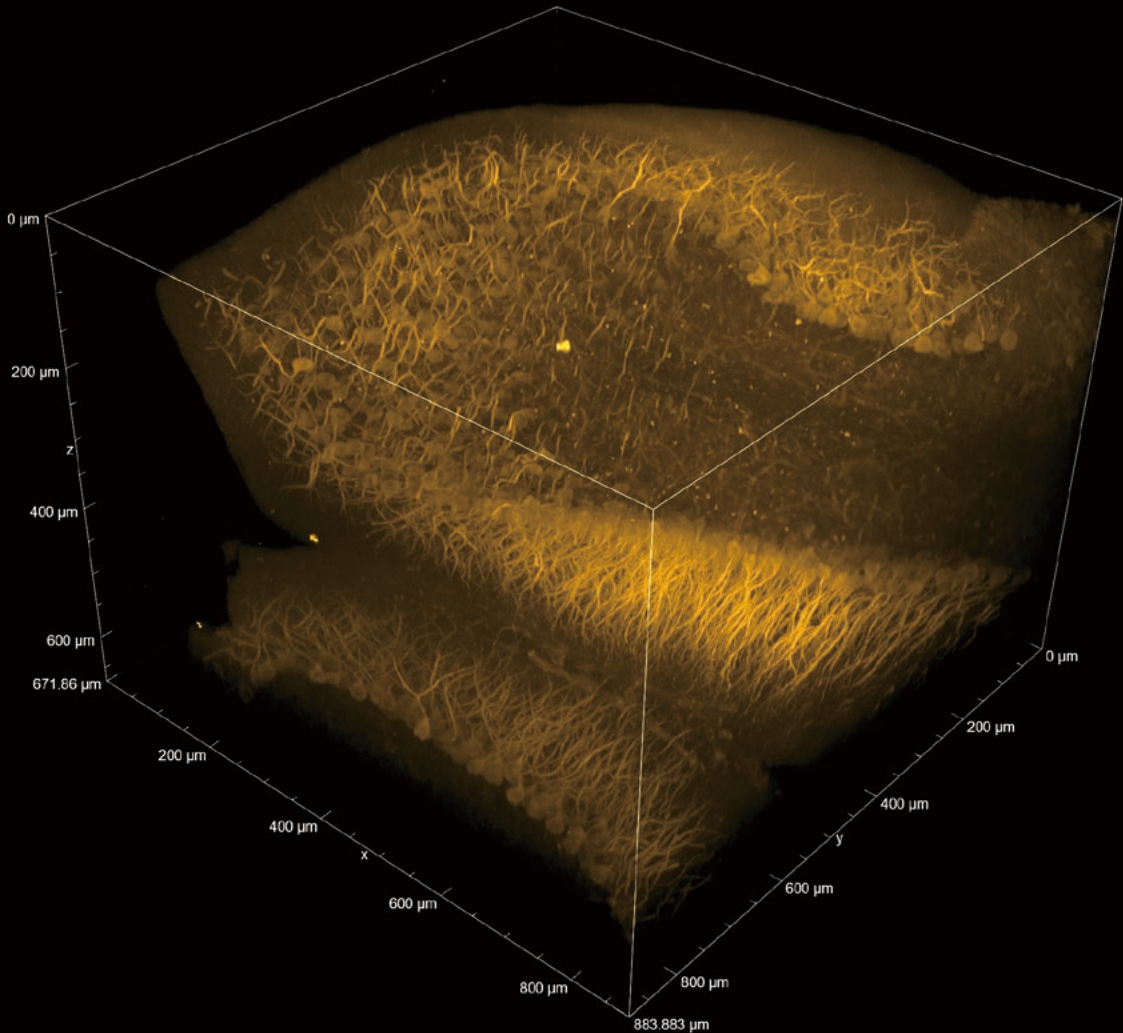


CFI75 Apochromat LWD 20XC W

Objective for large FOV multiphoton imaging

This objective can acquire bright multiphoton confocal images up to the edge of a large field of view of 22 mm. With a long working distance of 2.8 mm and a high numerical aperture of 1.00, it enables clear observation to deep within *in vivo* samples.

- NA: 1.00, WD: 2.8 mm
- Chromatic aberration correction from the visible to near IR range
- High-transmittance Nano Crystal Coat
- Correction collar for spherical aberration correction



Purkinje neuron in LC3GFP mouse cerebellum

Confocal Imaging

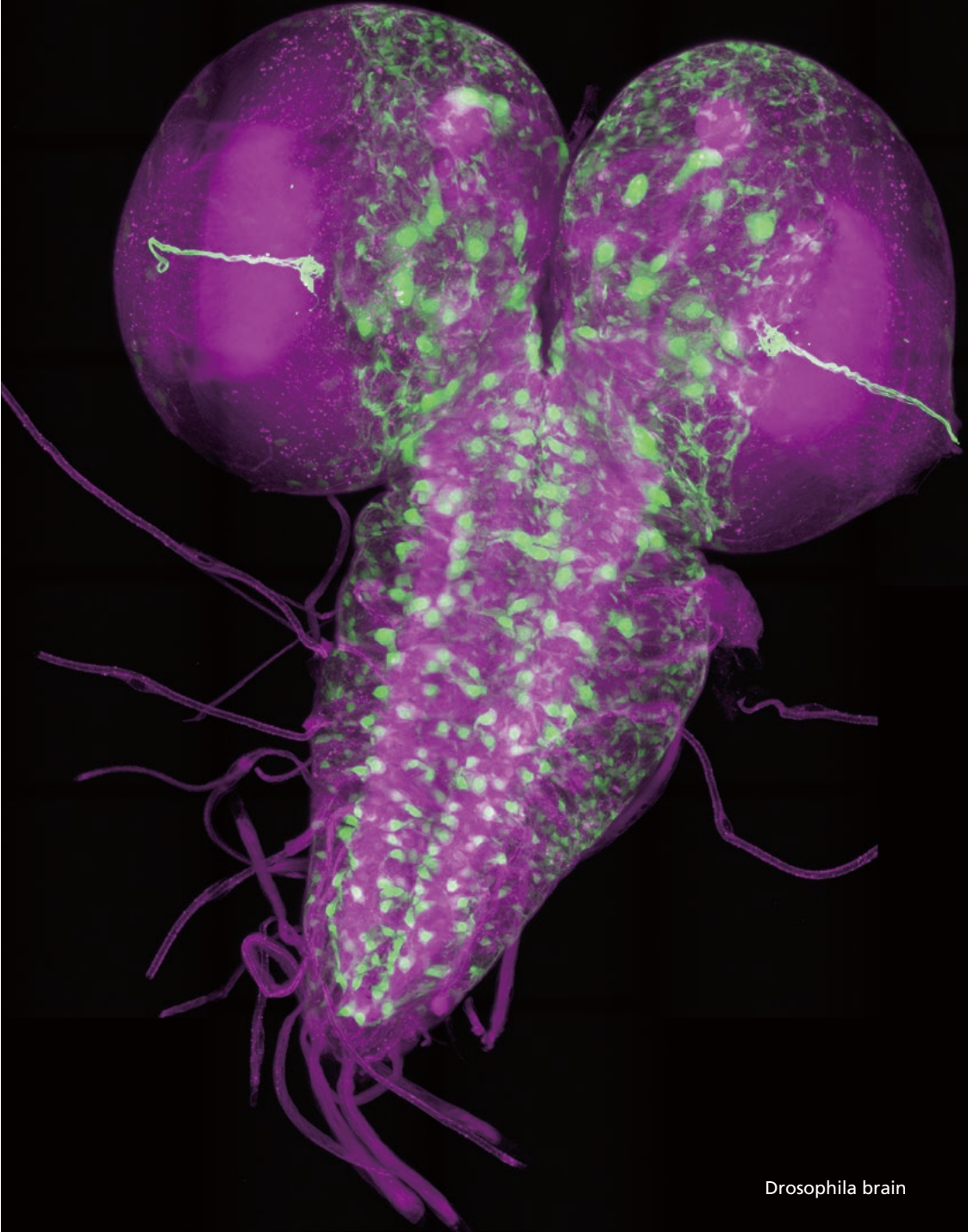


CFI Apochromat LWD Lambda S 20XC WI

A versatile objective for a wide range of applications

Combines high N.A., long working distance and large field of view for imaging thick, live samples. Chromatic aberration correction from visible to IR for multiphoton imaging as well.

- NA: 0.95, WD: 0.95 mm
- Chromatic aberration correction from the visible to IR range
- High-transmittance Nano Crystal Coat
- Correction collar for spherical aberration correction



Drosophila brain

Image courtesy of: Dr. L. Dubreil, Dr. J. Pichon and Pr MA Colle, CENN at PAnTher UMR703 INRAE/Oniris, Nantes France

Confocal Imaging



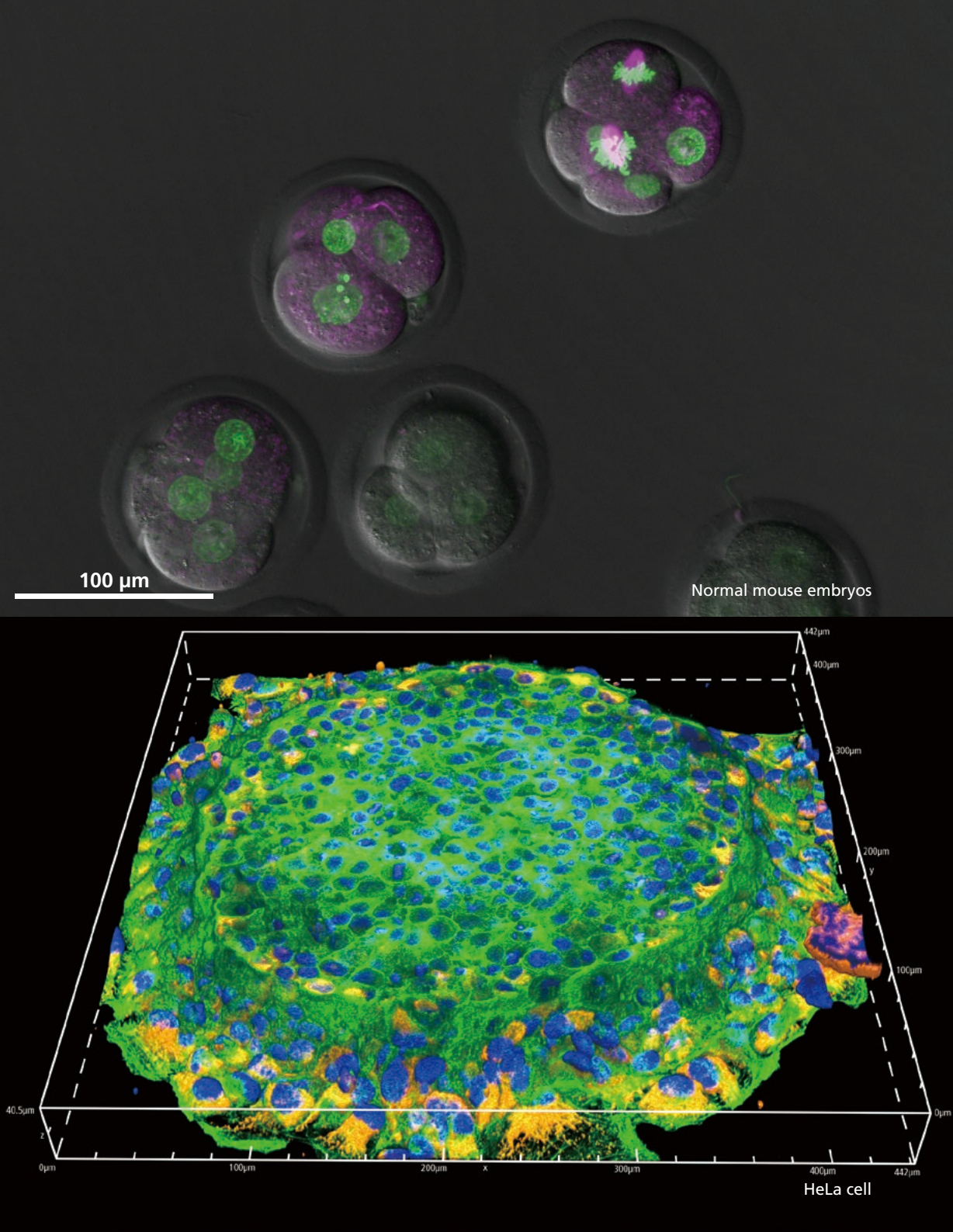
CFI Plan APOCHROMAT
Lambda S 25XC/40XC Sil

High-resolution objectives for observing
thick specimens

Silicone oil closely matches the refractive index of live cells, thereby minimizing spherical aberration and providing brighter, higher-resolution images. Unlike water, silicone oil demonstrates minimal evaporation at 37°C, thereby enabling extended, long-term time-lapse imaging experiments.

- NA: 1.05 (25XC)/1.25 (40XC),
WD: 0.55 mm (25XC)/0.30 mm (40XC)
- Chromatic aberration correction in the visible range
- High-transmittance Nano Crystal Coat
- Correction collar for spherical aberration correction

Image of mouse embryo courtesy of: Dr. Yoshiteru Kai, Shonan Yume Clinic, Yamashita



Confocal Imaging



CFI Plan APOCHROMAT IR
60XC WI

Incredible resolution and field flatness

This objective provides an NA of 1.27, the highest among 60X water immersion objectives, and achieves incredible field flatness. Corrects for chromatic aberration over a wide wavelength range up to IR, and supports various applications including multicolor live-cell confocal imaging, multiphoton imaging and laser tweezer applications.

- NA: 1.27, WD: 0.17 mm
- Chromatic aberration correction from the visible to IR range
- High-transmittance Nano Crystal Coat
- Correction collar for spherical aberration correction



Butterfly wing

Super-Resolution Imaging

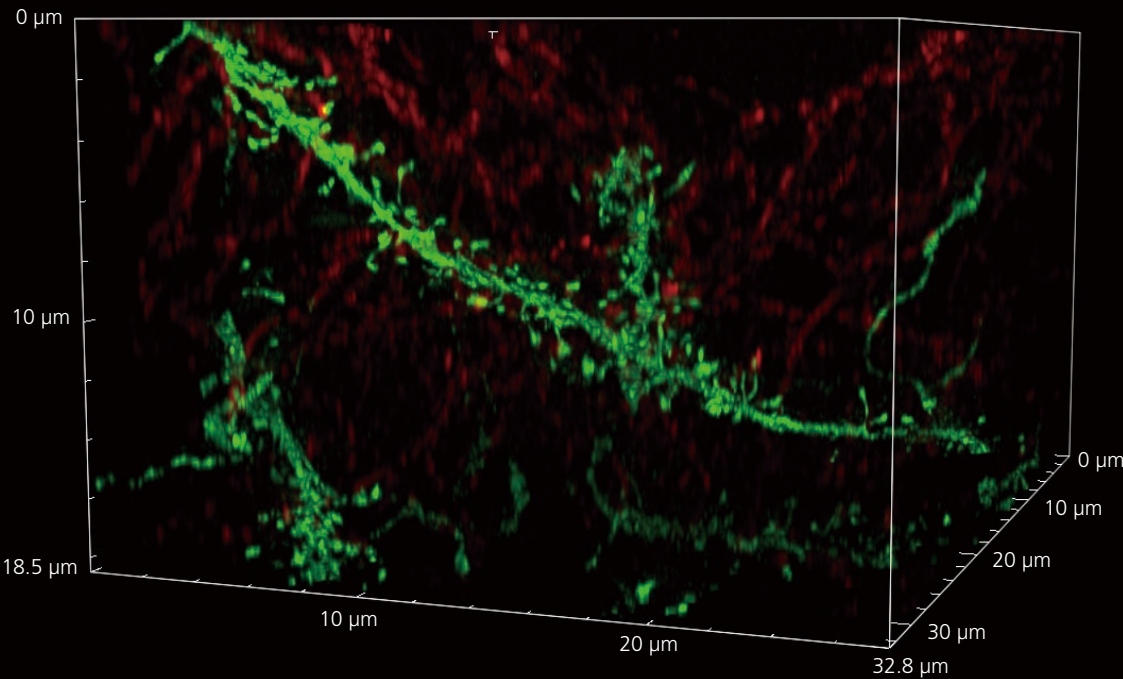


CFI SR HP Plan
Apochromat Lambda S
100XC Sil

High-resolution silicone oil immersion
objective for imaging live samples

Silicone oil more closely matches the refractive index of live cells compared to water or oil, thereby minimizing spherical aberration issues common to live cell imaging. In addition, the 100XC Sil lens achieves exceptional resolving power even at greater depths, making it well-suited for super-resolution imaging of thicker specimen.

- NA: 1.35, WD: 0.30 mm
- Chromatic aberration correction in the visible range
- High-transmittance Nano Crystal Coat
- Correction collar for spherical aberration correction



Dendrites

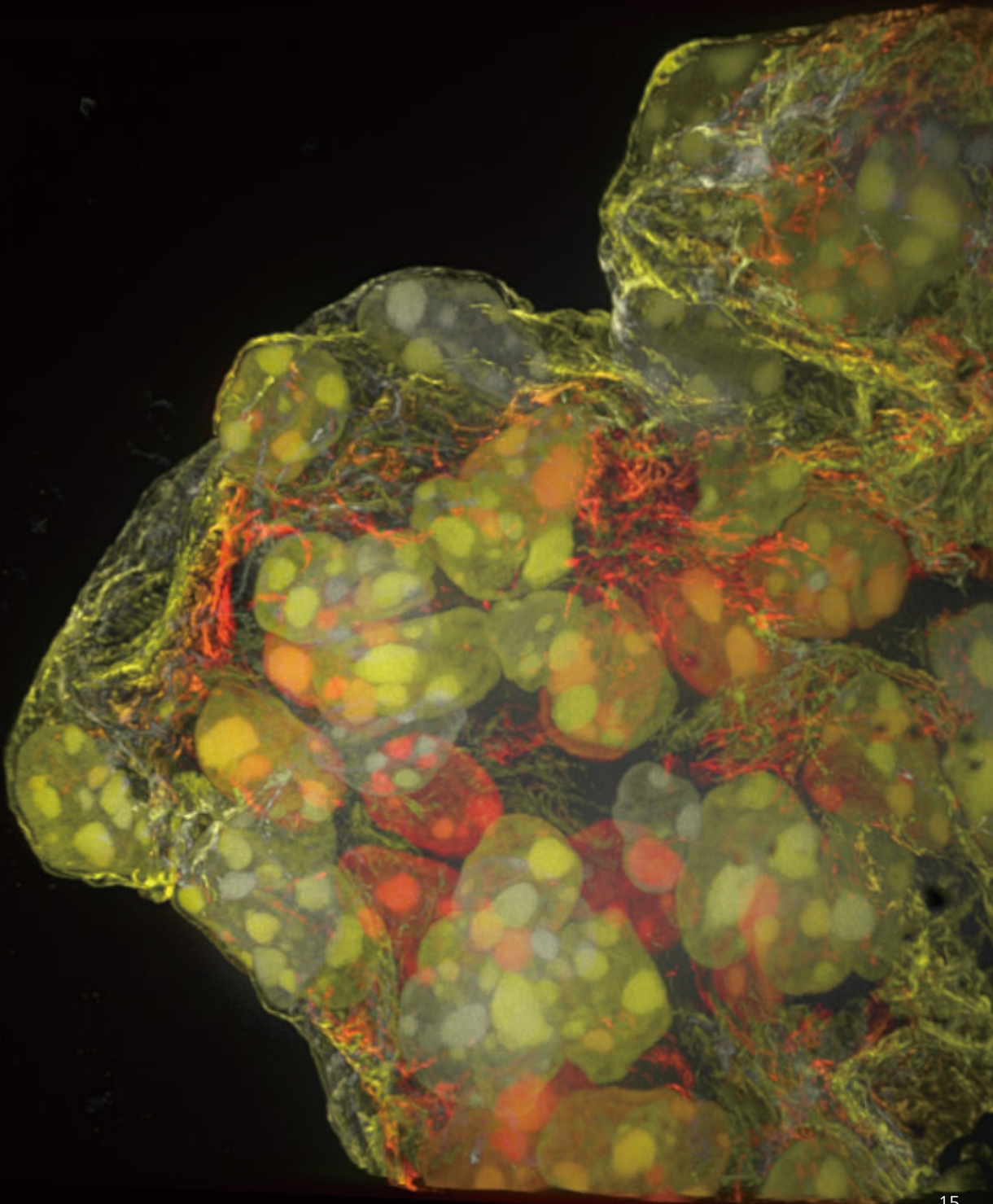
Super-Resolution Imaging



Auto Correction Collar

Quick and accurate spherical aberration
correction

Achieving the highest quality point spread function is critical for super-resolution imaging. The ACC quickly moves lens elements in the objective to an optimal position based on the acquired point spread function to minimize spherical aberration.



High-Content Imaging

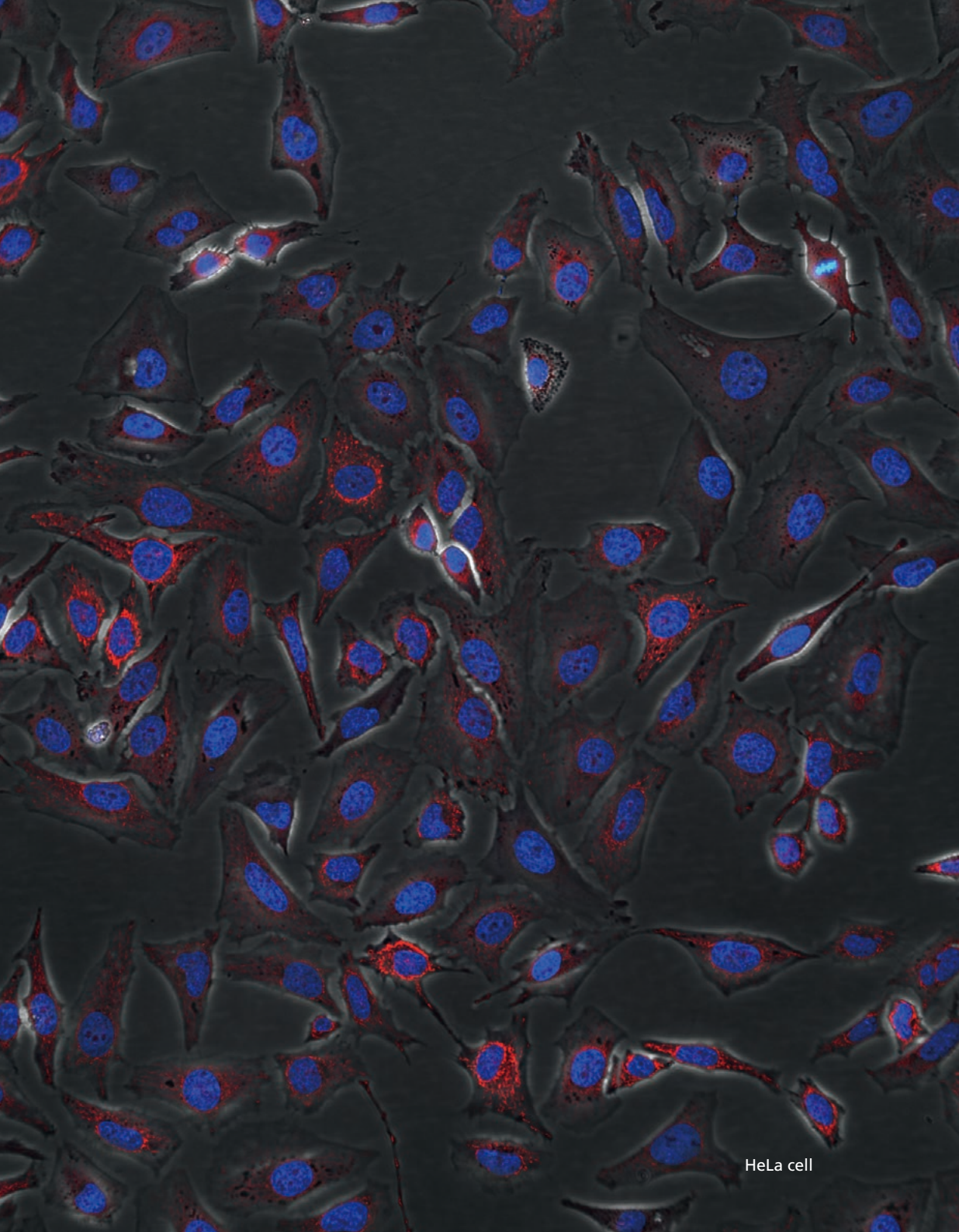


CFI S Plan Fluor LWD ADM 20XC

High NA and long WD objective designed for HC applications

This objective is compatible with thick plastic-bottom dishes and well-plates, and enables high-resolution phase-contrast and fluorescence observations. Its large FOV improves throughput of high-content applications.

- NA: 0.70, WD: 2.30-1.30 mm
- Chromatic aberration correction in the visible range
- Correction collar for spherical aberration correction



HeLa cell

Pathological Examination

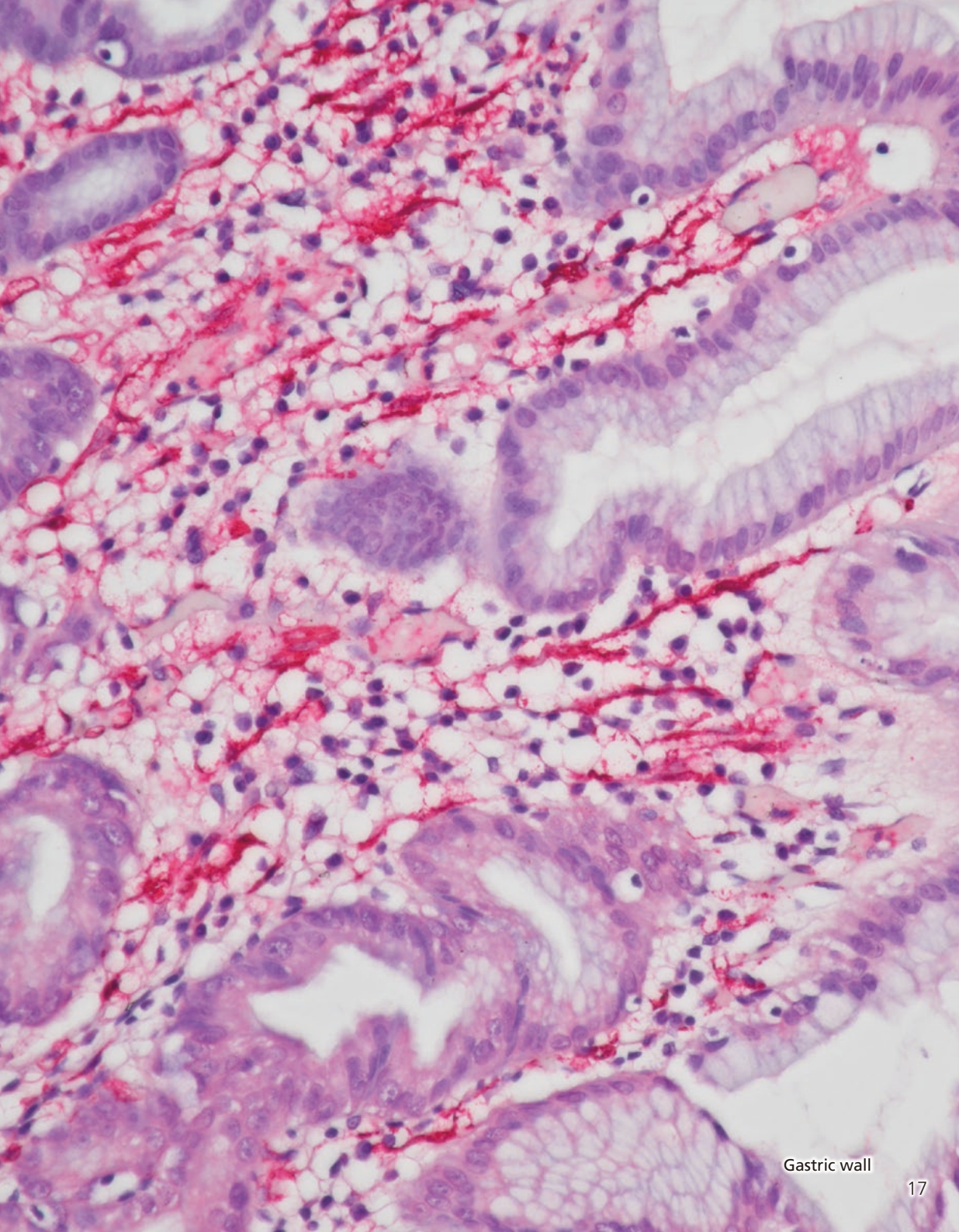


CFI Plan Achromat Lambda D 40XC

Large field-of-view imaging with uniform brightness

This objective achieves uniform brightness up to the edge of the field of view, chromatic aberration correction from 405 nm upward, and improved resolution. The 25 mm field of view allows you to capture images of a large area of the sample, improving throughput.

- NA: 0.95, WD: 0.21 mm
- Chromatic aberration correction from the visible to near IR range
- High-transmittance Nano Crystal Coat
- Correction collar for spherical aberration correction



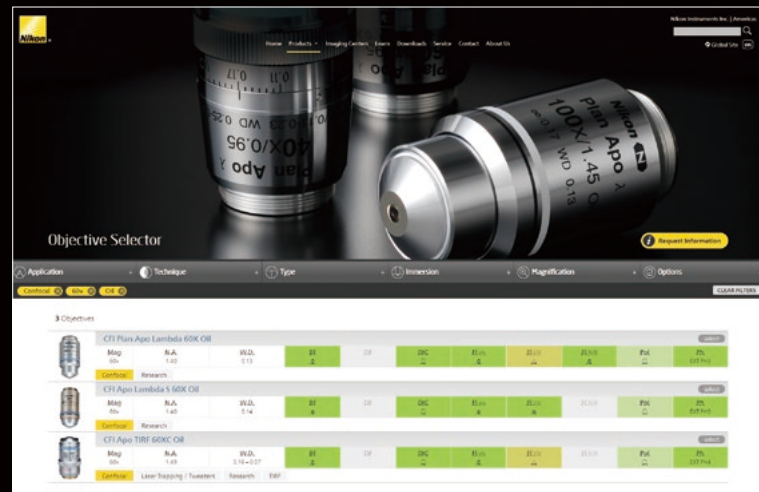
Gastric wall

Image courtesy of: Nichirei Biosciences Inc.

A tool for finding the right objective

Nikon's online Objective Selector tool enables you to quickly and easily find the right objective for your application. Refine your search based on application, technique, objective class, immersion type, etc. Specifications for multiple objectives can be displayed in a single window for easy comparison.

<https://www.microscope.healthcare.nikon.com/selectors/objectives>



OBJECTIVE SELECTOR



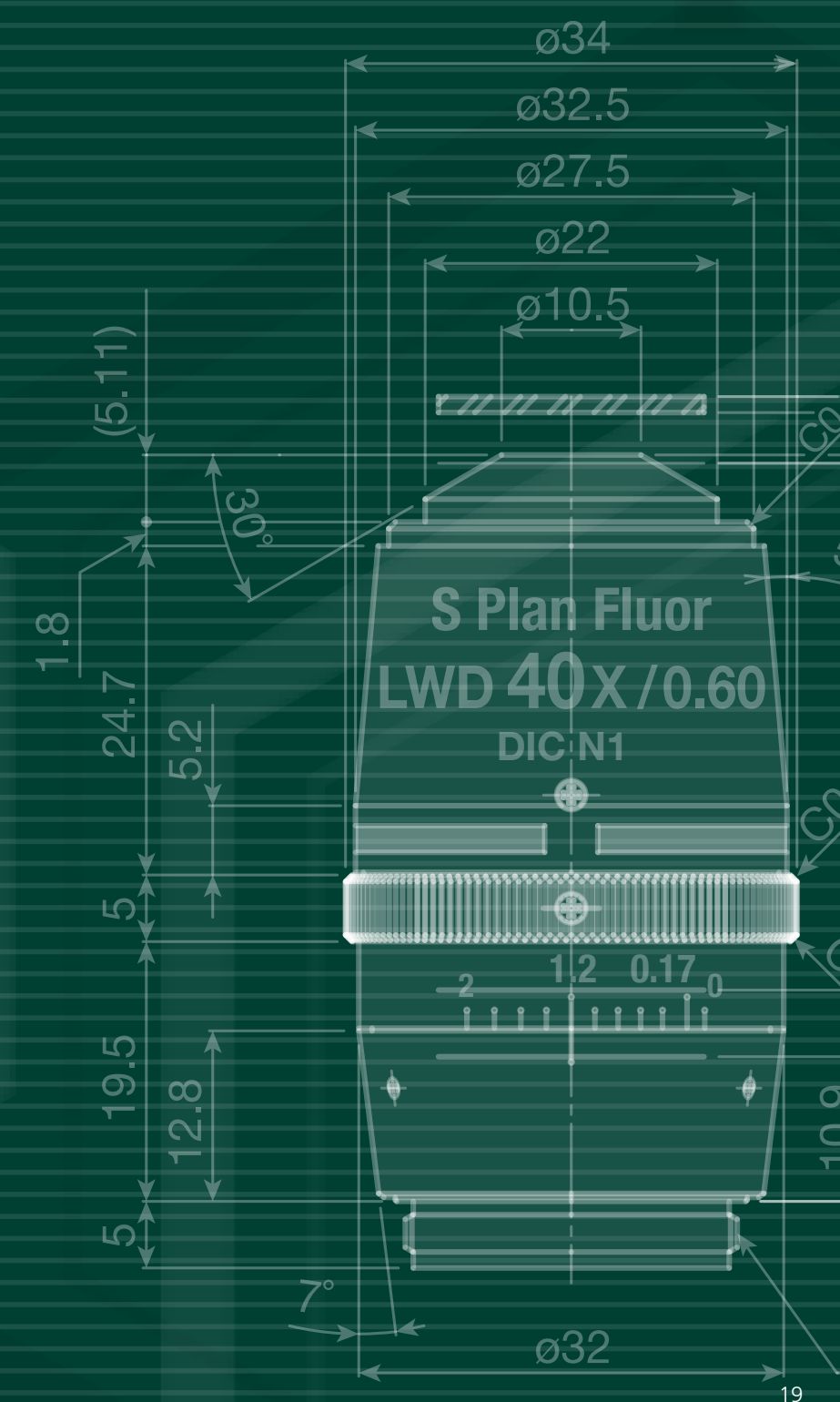
For OEM and DIY

With over 100 years of experience in developing optical technology, Nikon offers a wide range of components that can fulfill almost any optical requirement.

Nikon develops products to the highest standards, from design to manufacture, to ensure we meet the needs of a wide variety of customers.

For detailed specifications including dimensions and transmission information, please refer to the following website.

<https://www.microscope.healthcare.nikon.com/products/oem>



As individual as you

Nikon offers a broad portfolio of objectives to meet your individual application needs. Explore some of the different objective series in the following pages.



CFI Plan Apochromat Lambda D series

Outstanding image flatness and high resolution provide uniform image quality up to the edge of a large field of view of 25 mm, improving efficiency in image tiling and high content screening. Chromatic aberration has been corrected over a wide wavelength range from 405 nm to 850 nm, enabling highly accurate multicolor imaging.



CFI Plan Apochromat Lambda D 2X, 4X, 10X, 20X, 40XC, 60X Oil and 100X Oil

Silicone immersion objectives

Silicone oil closely matches the refractive index (RI) of living cells and tissues, allowing deep observations with minimal optical aberrations. Silicone immersion objectives enable clear observation with a high signal-to-noise ratio deep into living tissue, and facilitate ease of observation with their large fields of view, high resolution, and evaporation-resistant oil.



CFI Plan Apochromat Lambda S 25XC Sil, CFI Plan Apochromat Lambda S 40XC Sil, CFI Plan Apochromat Lambda S 60XC Sil

Use	Model	NA	W.D. (mm)	Cover glass thickness	Spring loaded	Brightfield	Darkfield	DIC	Phase contrast	Polarizing	Fluorescence			Ti2-E PFS
											UV	Visible light	NIR	
Brightfield (CFI Plan Apo)	Lambda D 2X	0.10	8.50	0/0.17		⊙					⊙ CF	⊙	⊙	●
	Lambda D 4X	0.20	20.00	0/0.17		⊙					⊙	⊙	⊙	●
	Lambda D 10X	0.45	4.00	0.17		⊙	△	⊙		●	⊙	⊙	⊙	●
	Lambda D 20X	0.80	0.80	0.17	✓	⊙	●	⊙		●	⊙	⊙	⊙	●
	Lambda D 40XC	0.95	0.21	0.11-0.23	✓	⊙	●	⊙		●	⊙ CF	⊙	⊙	●
	Lambda D 60X Oil	1.42	0.15	0.17	✓	⊙		⊙	EXT PH3-60x	●	⊙	⊙	⊙	●
	Lambda D 100X Oil	1.45	0.13	0.17	✓	⊙		⊙	EXT PH4-100x*	●	⊙	⊙	⊙	●
	Lambda S 25XC Sil	1.05	0.55	0.11-0.23		⊙	●	⊙			●	⊙		●
	Lambda S 40XC Sil	1.25	0.30	0.13-0.21 (23°C) 0.15-0.23 (37°C)		⊙	●	⊙			●	⊙		●
	Lambda S 60XC Sil	1.30	0.30	0.15-0.19		⊙		⊙			●	⊙	⊙	●
	IR 60XC WI	1.27	0.18-0.16	0.15-0.19	✓	⊙		⊙	EXT PH3-60x	○	●	○	⊙	●
	NCG 100X Oil	1.40	0.16	0	✓	⊙		⊙		○	●	⊙		

* An optical path length difference correction block is required.

Glossary

C: with correction collar
Oil: oil immersion
WI: water immersion
W: water dipping
Mi: multi immersion
Glyc: glycerin immersion
Sil: silicone oil immersion

Cover glass thickness

— : can be used without cover glass
0: use without cover glass

Darkfield

Possible with the following
△ : universal condenser (dry) and darkfield ring
○ : above and darkfield condenser (dry)
● : darkfield condenser (oil)

Phase rings

PHL, PH1, PH2, PH3: condenser cassette modules.
EXT PH3, EXT PH4: external phase contrast modules for Ti2-E.

Fluorescence (UV)

● : possible with visible light that has a longer wavelength than the excitation light used for DAPI
○ : suitable
⊙ : recommended for best results
340: high transmittance with an ultraviolet wavelength range of down to 340 nm
CF: confocal imaging is possible at 488 nm and above

Brightfield/DIC/Polarizing/Fluorescence (visible light)

● : possible but not recommended
○ : suitable
⊙ : recommended for best results

Ti2-E PFS

● : compatible with PFS

CFI Plan Apochromat VC

With its high degree of chromatic aberration correction and exceptional resolving power, the CFI Plan Apochromat VC 60XC WI is the perfect choice for multi-color fluorescence imaging as well as brightfield and DIC applications. In particular, axial chromatic aberration has been corrected in the short wavelength range, making this objective highly effective for confocal applications.



CFI Plan Apochromat VC 60XC WI

CFI SR series/CFI HP series/CFI SR HP series

Strict adjustment and inspection minimize the SR objective's asymmetric aberration, optimizing it for super-resolution microscopy. The HP objective has improved axial chromatic aberration correction and is compatible with the high-power lasers required for the fast blinks of fluorophores under super-resolution microscopy. The SR HP objective offers both excellent optical performance and high durability against high power laser excitation. AC objectives support the Auto Correction function of the Ti2-E inverted microscope.



CFI SR Plan Apochromat IR 60XC WI, CFI HP Plan Apochromat VC 100X Oil, CFI SR HP Apochromat TIRF 100XC Oil and CFI SR HP Plan Apochromat Lambda S 100XC Sil

Use	Model	NA	W.D. (mm)	Cover glass thickness	Spring loaded	Brightfield	Darkfield	DIC	Phase contrast	Polarizing	Fluorescence			Ti2-E PFS
											UV	Visible light	NR	
Brightfield (CFI Plan Apo)	VC 60XC WI	1.20	0.31-0.28	0.15-0.18	✓	⊙		○	EXT PH3-60X	○	⊙	⊙		●
Super-resolution (CFI SR Plan Apo)	IR 60XC WI	1.27	0.18-0.16	0.15-0.19		⊙		○	EXT PH3-60X	○	○	⊙	⊙	●
	IR 60XAC WI	1.27	0.18-0.16	0.15-0.19		⊙		○	EXT PH3-60X	○	○	⊙	⊙	●
Super-resolution (CFI HP Plan Apo)	VC 100X Oil	1.40	0.13	0.17	✓	⊙		○	EXT PH3-100X	○	●	⊙		●
Super-resolution (CFI SR HP Plan Apo)	Lambda S 100XC Sil	1.35	0.31-0.29 (23°C) 0.30-0.28 (37°C)	0.15-0.19		⊙		○		○	⊙	⊙		●
Super-resolution (CFI SR HP Apo)	TIRF 100XC Oil	1.49	0.16-0.10 (23°C) 0.15-0.09 (37°C)	0.13-0.19 (23°C) 0.14-0.20 (37°C)		⊙		○	EXT PH4-100X	○	●	⊙		●
	TIRF 100XAC Oil	1.49	0.16-0.10 (23°C) 0.15-0.09 (37°C)	0.13-0.19 (23°C) 0.14-0.20 (37°C)		⊙		○	EXT PH4-100X	○	●	⊙		●

CFI Apochromat Lambda S series

These high-numerical-aperture (NA) objectives provide chromatic aberration correction over wavelengths ranging from violet to near-infrared and are ideal for multicolor confocal imaging. The LWD Lambda S 20XC WI lens has a chromatic aberration correction range up to infrared. The transmittance of these lenses is enhanced over a wide wavelength range by utilizing Nano Crystal Coat technology.



CFI Apochromat Lambda S 40XC WI and CFI Apochromat LWD Lambda S 20XC WI/40XC WI

CFI Apochromat TIRF series

These objectives boast an unprecedented NA of 1.49 (using a standard coverslip and immersion oil),the highest resolution among Nikon objectives. Correction collars enable optimization of point spread functions for varying imaging temperatures, correcting spherical aberration when imaging at 23 and 37 degrees Celsius.



CFI Apochromat TIRF 60XC Oil and 100XC Oil

Multiphoton confocal objectives

These objectives are optimized for deep tissue imaging using a multiphoton confocal microscope, thanks to their ability to correct chromatic aberration up to near-IR range. They provide both long WD and high NA, as well as high transmittance. The Glyc models have a correction collar for the refraction index of immersion liquids, and are compatible with various tissue clearing reagents that are used in neuroscience research.



CFI Plan Apochromat 10XC Glyc, CFI90 20XC Glyc, CFI75 Apochromat LWD 20XC W and 25XC W 1300

Use	Model	NA	W.D. (mm)	Cover glass thickness	Spring loaded	Brightfield	Darkfield	DIC	Phase contrast	Polarizing	Fluorescence			Ti2-E PFS
											UV	Visible light	NIR	
Confocal (CFI Apo)	LWD Lambda S 20XC WI	0.95	0.99-0.90	0.11-0.23		⊙	●	○		○		○	○	●
	LWD Lambda S 40XC WI	1.15	0.61-0.59	0.15-0.19		⊙	●	○	EXT PH3-40X	○	⊙	⊙		●
	Lambda S 40XC WI	1.25	0.20-0.16	0.15-0.19	✓	⊙		○	EXT PH3-40X	○	⊙	⊙		●
Evanescent (CFI Apo)	TIRF 60XC Oil	1.49	0.16-0.10 (23°C) 0.13-0.07 (37°C)	0.13-0.19 (23°C) 0.15-0.21 (37°C)		⊙		○	EXT PH4-60X	○	●	⊙		●
	TIRF 100XC Oil	1.49	0.16-0.10 (23°C) 0.15-0.09 (37°C)	0.13-0.19 (23°C) 0.14-0.20 (37°C)		⊙		○	EXT PH4-100X	○	●	⊙		●
Multiphoton confocal (CFI Plan Apo)	10XC Glyc	0.50	Upright: 5.50 Inverted: 2.00	0-0.17		⊙	○●					○	○	
Multiphoton confocal (CFI90)	20XC Glyc*	1.00	8.20	0		●***								⊙
Multiphoton confocal (CFI75 Apo)	LWD 20XC W**	1.00	2.8	0-0.17		⊙					●	⊙	○	
	25XC W*	1.10	2.00	0		⊙	●	○****		○	○	⊙	○	
	25XC W 1300*	1.10	2.00	0		⊙	●	○****		○	○	⊙	○	

* Dedicated for FN1 and Ni-E focusing nosepiece type
** Dedicated for AX R MP multiphoton confocal system
*** Can only be used as a finder (chromatic aberration is corrected above 588 nm)
**** Also compatible with near-infrared DIC

CFI Plan Fluor series

Featuring a high transmission rate, especially in the ultraviolet wavelength, and flatness of field, this series is designed for fluorescence observation and imaging. These objectives can function as multi-purpose objectives for brightfield, fluorescence, simple polarizing, and DIC observations.



CFI Plan Fluor 4X, 10X, 20X, 40X, 60XC and 100X Oil



CFI Plan Fluor DLL 10X, 20X, 40X and 100X Oil

CFI Super Fluor series

This CFI Super Fluor series ensures an extra-high transmission rate of ultraviolet wavelengths down to 340nm for fluorochromes like indo-1 and fura-2. Also, these objectives have improved S/N ratios for short wavelengths and have high NA, making the fluorescence images they produce significantly sharper and brighter.



CFI Super Fluor 10X, 20X, 40XC and 40X Oil

Use	Model	NA	W.D. (mm)	Cover glass thickness	Spring loaded	Brightfield	Darkfield	DIC	Phase contrast	Polarizing	Fluorescence		Ti2-E PFS
											UV	Visible light	
Brightfield (CFI Plan Fluor)	4X	0.13	17.20	—		⊙				●	⊙	⊙	●
	10X	0.30	16.00	0.17		⊙	△	○		○	⊙	⊙	●
	20X	0.50	2.10	0.17		⊙	○●	○		○	⊙	⊙	
	20XC MI	0.75	0.51-0.35 (oil) 0.51-0.34 (glycerin) 0.49-0.33 (water)	0-0.17	✓	⊙	○●	○		○	⊙	⊙	
	40X	0.75	0.66	0.17	✓	⊙	○●	○		○	⊙	⊙	●
	40X Oil	1.30	0.24	0.17	✓	⊙		○	EXT PH3-40X	○	⊙	⊙	●
	60XC	0.85	0.40-0.31	0.11-0.23	✓	⊙	●	○		○	⊙	⊙	
	60XS Oil	0.50-1.25	0.22	0.17	✓	⊙	○●	○	EXT PH3-60X	○	⊙	⊙	
Phase contrast (CFI Plan Fluor)	100X Oil	1.30	0.16	0.17	✓	⊙		○		○	⊙	⊙	●
	100XS Oil	0.50-1.30	0.16	0.17	✓	⊙	○●	○		○	⊙	⊙	
	DL 4XF	0.13	16.50	1.20		○			⊙ PHL		○	○	
	DLL 10X	0.30	16.00	0.17		○	△		⊙ PH1		○	○	●
	DL 10XF	0.30	15.20	1.20		○	△		⊙ PH1		○	○	●
	DLL 20X	0.50	2.10	0.17		○	○●		⊙ PH1		○	○	●
	DLL 40X	0.75	0.66	0.17	✓	○	○●		⊙ PH2		○	○	●
	DLL 100X Oil	1.30	0.16	0.17	✓	○			⊙ PH3		○	○	●
Apodized phase contrast (CFI Plan Fluor)	DM 40X	0.75	0.66	0.17	✓	○	○●		⊙ PH2		○	○	
	BM 40X	0.75	0.66	0.17	✓	○	○●		⊙ PH2		○	○	●
	ADH 100X Oil	1.30	0.16	0.17	✓	○			⊙ PH3		○	○	●
Brightfield (CFI Super Fluor)	4X	0.20	15.50	—		⊙				●	⊙ 340	⊙	●
	10X	0.50	1.10	0.17	✓	⊙	○●	○		●	⊙ 340	⊙	●
	20X	0.75	1.00	0.17	✓	⊙	○●	○		●	⊙ 340	⊙	●
	40XC	0.90	0.34-0.26	0.11-0.23	✓	⊙	●	○		●	⊙ 340	⊙	
	40X Oil	1.30	0.19	0.17	✓	⊙		○		●	⊙ 340	⊙	●
	100XS Oil	0.50-1.30	0.20	0.17	✓	⊙	○●			●	⊙ 340	⊙	

CFI S Plan Fluor series

The broadband multilayer coating realizes high transmittance from ultraviolet to near-infrared wavelengths, with superior chromatic correction. The correction collar allows these objectives to be used with a diverse range of culture vessels and specimen thicknesses. High-quality images with no aberrations can be obtained under a broad range of illumination techniques.



CFI S Plan Fluor LWD 20XC and LWD ADM 20XC



CFI S Plan Fluor ELWD 20XC, 40XC and 60XC



CFI S Plan Fluor ELWD ADM 20XC, 40XC and ADL 60XC

Nikon Advanced Modulation Contrast (NAMC) series

Nikon has developed dedicated objectives for advanced modulation contrast. Colorless and transparent samples can be observed in high relief with a plastic dish, which is not possible in DIC observation. The direction of contrast can be matched to S Plan Fluor ELWD NAMC objectives, thereby allowing optimal contrast selection for techniques like microinjection and ICSI.



CFI S Plan Fluor ELWD NAMC 20XC and 40XC



CFI NAMC 10XF, CFI LWD NAMC 20XF and 40XC

Use	Model	NA	W.D. (mm)	Cover glass thickness	Spring loaded	Brightfield	Darkfield	DIC	Phase contrast	Polarizing	Fluorescence		Ti2-E PFS
											UV	Visible light	
Brightfield (CFI S Plan Fluor)	LWD 20XC	0.70	2.30-1.30	0-1.80		⊙	○●	○		○	⊙	⊙	●
	ELWD 20XC	0.45	8.20-6.90	0-2.00		⊙	○●	○		○	⊙	⊙	●
	ELWD 40XC	0.60	3.60-2.80	0-2.00		⊙	○●	○		○	⊙	⊙	●
	ELWD 60XC	0.70	2.60-1.80	0.10-1.30		⊙	○●	○		○	⊙	⊙	
	LWD ADM 20XC	0.70	2.30-1.30	0-1.80		○	○●		⊙ PH2		○	○	●
Apodized phase contrast (CFI S Plan Fluor)	ELWD ADM 20XC	0.45	8.20-6.90	0-2.00		○	○●		⊙ PH1		○	○	●
	ELWD ADM 40XC	0.60	3.60-2.80	0-2.00		○	○●		⊙ PH2		○	○	●
	ELWD ADL 60XC	0.70	2.60-1.80	0.10-1.30		○	○●		⊙ PH2		○	○	
	LWD NAMC 20XC	0.45	8.20-6.90	0-2.00		○					○	○	
Advanced modulation contrast (CFI S Plan Fluor)	ELWD NAMC 40XC	0.60	3.60-2.80	0-2.00		○					○	○	
Advanced modulation contrast (CFI)	NAMC 10XF	0.25	6.20	1.20		○						●	
	LWD NAMC 20XF	0.40	3.10	1.20		○						●	
	LWD NAMC 40XC	0.55	2.70-1.70	0-2.00		○						●	

CFI Plan Achromat series

CFI Plan Achromat series provides incredible image flatness, with chromatic aberration corrected throughout the entire visible spectrum. These objectives are suitable not only for observation but also for capturing images.



CFI Plan 1X, 2X, 4X, 10X, 20X, 40X and 100X Oil



CFI Plan DL 10X, 20X, 40X and 100X Oil

Water Dipping Series

Sharper tips and broad approach angles provide improved accessibility for manipulator control. Aberrations are corrected even in the infrared range for high-magnification objectives, making them suitable for multi-photon imaging using infrared light.



CFI Plan Fluor 10XW, CFI75 LWD 16XW, CFI Apochromat NIR 40XW/60XW and CFI Plan 100XC W

Use	Model	NA	W.D. (mm)	Cover glass thickness	Spring loaded	Brightfield	Darkfield	DIC	Phase contrast	Polarizing	Fluorescence		Near- infrared DIC
											UV	Visible light	
Brightfield (CFI Plan)	1X	0.04	3.20	—		●				●		●	
	2X	0.06	7.50	—		○				●		●	
	4X	0.10	30.00	—		●				●		●	
	10X	0.25	10.50	—		●	△			●		●	
	20X	0.40	1.20	0.17		●	●			●		●	
	40X	0.65	0.56	0.17	✓	○	●		⊙ PH1	●		○	
	50X Oil	0.90	0.35/0.18	—/0.17	✓	○	●			●		○	
	100X Oil	1.25	0.20	0.17	✓	○				●		○	
	NCG 40X	0.65	0.48	0	✓	○	●			●		○	
	NCG 100X	0.90	1.00	0	✓	○	●			●		○	
Phase contrast (CFI Plan)	DL 10X	0.25	10.50	—		○	△		⊙ PH1	●		●	
	DL 20X	0.40	1.20	0.17		○	●		⊙ PH1	●		●	
	DL 40X	0.65	0.56	0.17	✓	○	●		⊙ PH2	●		●	
	DL 100X Oil	1.25	0.20	0.17	✓	○			⊙ PH3	●		●	
DIC (CFI Plan Fluor)	10X W	0.30	3.50	0		○	△	○		○	○	○	○
IR-DIC (CFI Apo)	NIR 40X W	0.80	3.50	0		○	●	○		○	●	○	○
	NIR 60X W	1.00	2.80	0		○	●	○		○		○	○
DIC (CFI Plan)	100XC W	1.10	2.50	0		○	●	○		○		○	○
DIC (CFI75)	LWD 16X W *	0.80	3.00	0		○	●	○		○	○	○	○

* Dedicated for FN1 and Ni-E focusing nosepiece type

CFI Achromat series

This series of objectives provide dramatic correction for chromatic aberration, spherical aberration and coma. Image flatness is significantly improved. Nikon specifically developed ADL series for phase contrast observations by using its proprietary apodization process to improve the objective's phase ring. Imaging cell division is often impeded by unwanted halos due to the sample thickness. ADL mitigates this effect for clearer observation of mitotic events.



CFI 4X and 10X, CFI LWD 20X, CFI 40X, CFI NCG 60X and CFI 100X Oil



CFI DL 10X, CFI LWD DL 20X, CFI DL 40X and 100X Oil



CFI ADL 10XF, CFI LWD ADL 20XF, 40XF and 40XC

Use	Model	NA	W.D. (mm)	Cover glass thickness	Spring loaded	Brightfield	Darkfield	DIC	Phase contrast	Polarizing	Fluorescence		Ti2-E PFS
											UV	Visible light	
Brightfield (CFI)	4X	0.10	30.00	—		⊙				●		○	
	10X	0.25	7.00	—		○	△			●		○	
	LWD 20X	0.40	3.90	0.17		○	○●			●		○	
	40X	0.65	0.65	0.17	✓	○	○●			●		○	
	LWD 40XC	0.55	2.70-1.70	0-2.00		○	○●			●		○	
	60X	0.80	0.30	0.17	✓	○	●			●		○	
	NCG 60X	0.80	0.30	0.17	✓	○	○●			●		○	
	100X Oil	1.25	0.23	0.17	✓	○				●		○	
	100XS Oil	0.50-1.25	0.23	0.17	✓	○	○●			●		○	
	DL 10X	0.25	7.00	—		○	△		⊙ PH1	●		●	
Phase contrast (CFI)	LWD DL 20X	0.40	3.90	0.17		○	○●		⊙ PH1	●		●	
	LWD DL 20XF	0.40	3.10	1.20		○			⊙ PH1	●		●	
	DL 40X	0.65	0.65	0.17	✓	○	○●		⊙ PH2	●		●	
	LWD DL 40XC	0.55	2.70-1.70	0-2.00		○	○●		⊙ PH2	●		●	
	DL 100X Oil	1.25	0.23	0.17	✓	○			⊙ PH3	●		●	
	BM 10X	0.25	7.00	0.70		○			⊙ PH1	●		●	
	ADL 10XF	0.25	6.20	1.20		○			⊙ PH1	●		●	
	LWD ADL 20XF	0.40	3.10	1.20		○			⊙ PH1	●		●	
Apodized phase contrast (CFI)	LWD ADL 40XF	0.55	2.10	1.20		○			⊙ PH1	●		●	
	LWD ADL 40XC	0.55	2.70-1.70	0-2.00		○	○●		⊙ PH2	●		●	

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Optics product page



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EU Declaration of Conformity

This European Declaration of Conformity is issued under the sole responsibility of the manufacturer.

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Nikon Europe B.V.	Stroombaan 14, 1181 VX Amstelveen, The Netherlands	NL-AR-000028107	+31-20-7099-000 MDR.eu@nikon.com

PRODUCT IDENTIFICATION		
Product / Trade Name	Product Code	Basic UDI-DI
ECLIPSE Ci-L plus	MBA95010	4549921AA000MQ
Intended Purpose		
This microscope and accessories are optical instruments used to enlarge images of specimens, preparations, and cultures for medical purposes.		

IVDR RISK CLASS / STANDARDS / COMMON SPECIFICATIONS			
Device Classification		Standards	Common Specifications
Class	A	EN 61010-1:2010/A1:2019/AC:2019-04 EN 61010-2-101:2017 EN 62366-1:2015 EN 62304:2006+A1:2015 EN 62471:2008	N/A
Rule	5	EN 61326-1:2013 EN 61326-2-6:2013 EN IEC 63000:2018 EN ISO 14971:2012 EN ISO 13485:2016	

Nikon Corporation declares that the above-mentioned products meet the provision of the following EU legislation:

- In Vitro Diagnostic Medical Device Regulation (IVDR) (EU) 2017/746
- RoHS Directive (2011/65/EU, 2015/863/EU)

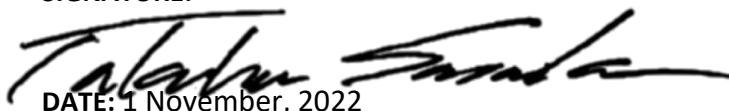
We, Nikon Europe B.V., Stroombaan 14, 1181 VX Amstelveen, The Netherlands, as the authorized representative, declare the conformity.

COMPANY REPRESENTATIVE: TAKAHARU SASAOKA

TITLE: Director & Executive Vice President
Healthcare Division Head

PLACE: AMSTELVEEN, THE NETHERLANDS

SIGNATURE:



DATE: 1 November, 2022

Condenser			NA	O.D. (mm)	Objective Magnification*
❶	MBL71100	C-C Abbe Condenser NA 0.9	0.9	1.9	4x-100x
❷	MBL71200	C-C Achromat Condenser NA 0.9	0.8	2.0	4x-100x
❸	MBL11300	Achromat Swing-out Condenser 2-100x	0.9/0.22	1.8	2x-100x
❹	MBL71500	C-C Slide Achro Condenser 2-100x	0.9	2.2	2x-100x
❺	MBL71300	C-C Achromat Swing-out Condenser 1-100x	0.8/0.12	3.2	1x-100x
❻	MBL71400	C-C Achromat Aplanatic Condenser	1.4	1.6	10x-100x
		X LWD Condenser	0.65	10.2	4x-40x
❼	MBL12010	Darkfield Condenser for X/Y (Oil)	0.8-0.95	4	20x-40x
❽	MBL12000	Darkfield Condenser for X/Y (Dry)	1.2-1.43	1.5	20x-100x
❾	MBL78700	D-CUO DIC Condenser Oil	1.4	1.6	10x-100X
	MBL99000	NI-CUD Universal Condenser Dry	0.88	2.5	2x-100X
	MBL99800	NI-CUD-E Motorized Universal Condenser Dry	0.88	2.5	2x-100X

*F.O.V.22

Intermediate Module

10	MBB75710	C-ER Eyelevel Riser
11	MBB74100	Y-IDP Double Port (Beam split ratio: Eyepiece/Rear Port = 55/45, 100/0)
12	MBB75500	Y-IM Magnification Module (1x, 1.25x, 1.5x, 2x)
13	MBB75400	Y-IDT Drawing Tube



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Other accessories

14	MBE49100	D-FLE Filter Cube for Reflected Illumination
15	MBE49200	D-FLD Filter Cube for Darkfield Illumination
16	MBH79000	D-ES Slider for Reflected Illumination
17	MXA22129	C-FK Fine Focus Knob
	MBN91802	NI-ND2 Filter 36mm ND2**1



14



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16



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*1 For Ni only

2.3.4 Refocusing

By turning the coarse focus clamp ring after focusing on the specimen, you can prevent the stage from being raised further with the coarse focus knob. The movement of the stage with the fine focus knob will not be locked.

Using this function, you can refocus with ease by simply turning the coarse focus knob to the limit. This is helpful when switching between similar specimens during the observation.

- (1) With the focus set on the specimen, tighten the coarse focus clamp ring by turning it approximately 3/4 of a rotation in the direction of the arrow on the base of the microscope.

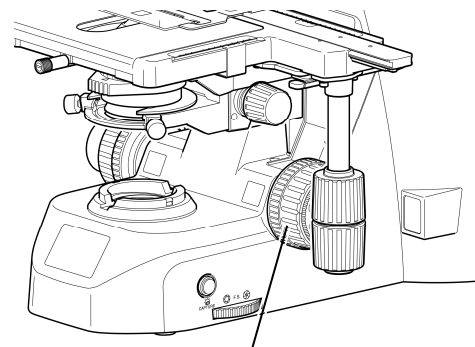
This will clamp the movement of the coarse focus knob.

- (2) When replacing the specimen, lower the stage by using only the coarse focus knob.

- (3) After replacing the specimen, use only the coarse focus knob to raise the stage slowly until it reaches the upper limit.

At the upper limit, the focus should be more or less on the specimen. Use the fine focus knob for finer adjustment.

If you do not wish to use the refocusing function, be sure to loosen the coarse focus clamp ring to the limit (turn it in the direction opposite to the arrow on the base of the microscope until it hits the limit).



Coarse focus clamp ring

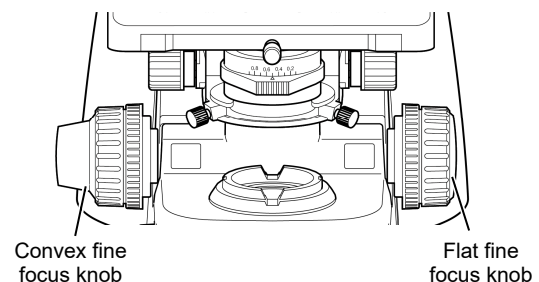
Refocusing

2.3.5 Position Exchange of the Fine Focus Knob

Among left and right fine focus knobs, one is flat and the other is convex. Both fine focus knobs are attached to the coarse focus knobs using magnet, so you can detach the left and right knobs from the coarse focus knobs and swap them.

Position them to best suit your usage.

The flat fine focus knob mounted as a standard component has 2 mm projection. A knob having 7 mm projection is available as an option.



Position exchange of the fine focus knob

✓ Removing a flat focus knob

A flat fine focus knob can be easily removed by inserting the attached tool into the notch in the knob.

2.1.2 ECO/SLEEP Mode

The ECO and SLEEP modes both bring the microscope into the sleep state.

In either mode, the microscope enters into the sleep state and the dia-illumination and LED display indications go out to save power consumption.

ECO mode

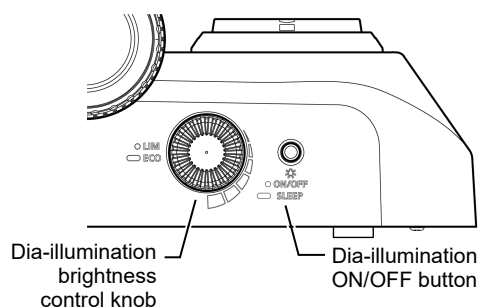
In ECO mode, the microscope enters into the sleep state after a preset period of time without operation while the power is on. ECO mode is turned on and off by long-pressing the brightness control knob. (Set to ON by default) [ECO] is indicated on the status display panel while in ECO mode.

✓ **Setting time to enter into the sleep**

Time to enter into the sleep state can be set on the Ni Setup Tool operation software. (Set to 15 minutes by default)

✓ **During observation using the eyepieces only or long-interval imaging (which does not involve operation of controls)**

Turn off the ECO mode.

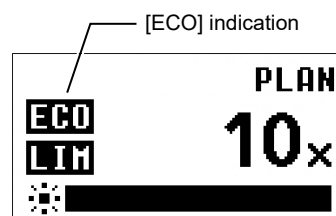


Mode control with the brightness control knob

- **Long-press:** Turning the ECO mode on and off

Mode control with the dia-illumination ON/OFF button

- **Long-press:** Enters into the SLEEP mode



Operation screen

SLEEP mode

In SLEEP mode, the microscope can be put into the sleep mode any time.

The microscope enters into or exits the sleep state by long-pressing the illumination ON/OFF button.

Exiting the sleep state

The microscope wakes up from the sleep state to the power-on state by any of the following operations:

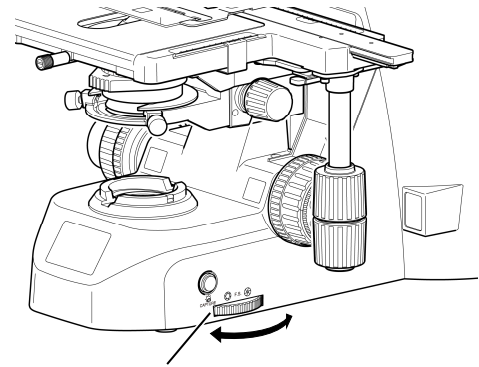
- Turning of pressing the brightness control knob
- Pressing the dia-illumination ON/OFF button
- Rotating the nosepiece

2.9 Adjusting the Field Diaphragm

The field diaphragm is used to restrict illumination to the area of the specimen being viewed.

Turning the field diaphragm dial changes the size of the field diaphragm.

For normal observations, the size of the diaphragm should almost circumscribe the field of view.



Field diaphragm dial
Adjusting the field diaphragm

✓ **Proper size of the field diaphragm**

Normally, the size is optimal when it almost circumscribes the field of view. Opening the field diaphragm too much and illuminating a broader area than necessary will result in stray light entering the field of view, generating flare and reducing the image contrast. In addition, the specimen will become decolorized over a wider area.

✓ **Adjusting timing for the field diaphragm**

Be sure to adjust the field diaphragm each time you change the objective.

Certificate of Registration

品質マネジメントシステム - ISO 9001:2015

This is to certify that:

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認証登録番号: FM 730353

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顕微鏡、顕微鏡用レンズ及びアクセサリの設計開発、製造、販売、修理
Design and development, manufacture, sales, and repair of microscope, microscope lens and accessories.

For and on behalf of BSI:



Michael Lam - Managing Director Assurance, APAC

初回認証登録日: 1993-10-29

最新更新日: 2023-10-04

発効日: 2023-11-28

有効期限日: 2026-11-27

Page: 1 of 2



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認証登録番号： FM 730353

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顕微鏡、顕微鏡用レンズ及びアクセサリの設計開発、製造管理、修理
Design and development, manufacture control and repair of
microscope, microscope lens and accessories.

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顕微鏡、顕微鏡用レンズ及びアクセサリの販売
Sales of microscope, microscope lens and accessories.

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Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 13485:2016 & EN ISO 13485:2016

This is to certify that: NIKON CORPORATION
Healthcare Business Unit
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神奈川県
横浜市栄区
長尾台町471

Holds Certificate No: MD 711119

and operates a Quality Management System which complies with the requirements of ISO 13485:2016 & EN ISO 13485:2016 for the following scope:

Design, Manufacture and Servicing of Biological Microscope
生物顕微鏡の設計、製造、付帯サービス

For and on behalf of BSI:


Graeme Tunbridge, Senior Vice President Medical Devices

Original Registration Date: 2019-11-20

Latest Revision Date: 2023-10-04

Effective Date: 2023-11-15

Expiry Date: 2026-11-14

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Certificate No: MD 711119

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長尾台町471

Registered Activities

Design, Manufacture Control and Servicing of Biological
Microscope
生物顕微鏡の設計、製造管理、付帯サービス

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港南2-15-3

Sales of Biological Microscope
生物顕微鏡の販売

Original Registration Date: 2019-11-20

Latest Revision Date: 2023-10-04

Effective Date: 2023-11-15

Expiry Date: 2026-11-14

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