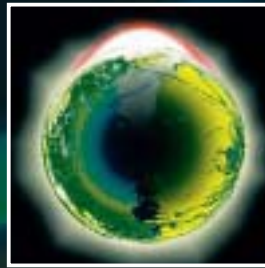


**Nikon**

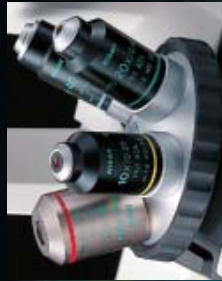
Inverted Routine Microscopes



**ECLIPSE**  
**TS100**

**CFI60**

# Eclipse TS100. Adding new dimensions to inverted routine microscopes



CF160 objectives

In designing the new microscope, Nikon started with its optical performance. First, they incorporated their acclaimed CF160 optical system—a fusion of CF optics with infinity optics—into this new, small-sized inverted microscope. These optics provide flat, sharp, and brilliantly clear images, while achieving longer working distances and higher numerical apertures. Furthermore, epi-fluorescence and HMC observations are now possible using routine accessories available as options.

To improve observation under phase contrast microscopy, Nikon developed a series of Apodized with excellent contrast and wider tonal ranges. But Nikon didn't stop here. They redesigned the body, so that it is robust, rigid, and vibration-resistant, and placed all controls so that they fall naturally under your hand. To accommodate image documentation, Nikon offers a trinocular model as well. The TS100-F comes with a photo port and accepts various photomicrographic systems, including a CCTV camera, or a digital still camera.



Binocular type Model TS100

Trinocular type Model TS100-F

## Operation is simpler, quicker, more precise, because there is less strain on the user



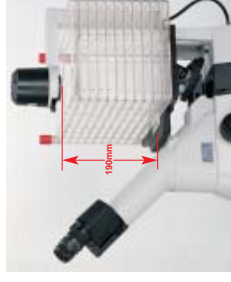
### Coarse/fine focus knob

The coaxial coarse/fine focus knob, located in front of and close to the operator, makes operation at high magnifications more efficient and convenient than ever before.



### Efficient, user-friendly stage

The stage features a low-profile design that is 195mm high, making it the ideal size for a lab bench or safety hood. Even cell cultures on the bottom of a tall flask or stacking chamber vessel can be viewed, because there is 190mm of space above the stage when the condenser is removed. Additionally, because the operator side of the stage has an acrylic window insert, it is easy to confirm which objective is being used without removing the specimen from the stage.



Ample space above the stage



Makes for easy confirmation of the objective being used.

### Easy-to-rotate nosepiece

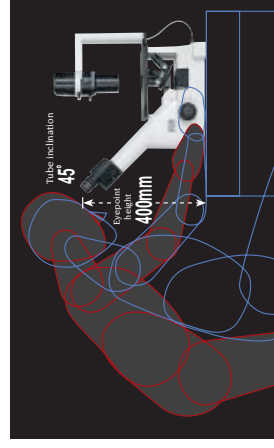
The quintuple (5-position) backward-facing nosepiece offers plenty of clearance to allow the operator to rotate it from either side. Because there is ample space around the nosepiece, handling the nosepiece is easy, even for an operator with large or gloved hands.



Plenty of clearance around the nosepiece

### Eyepiece tube

The Siedentopf-type eyepiece tube is inclined 45° and the eyepoint height is 400mm for easy, comfortable viewing in the sitting or standing position.



Comfortable operation

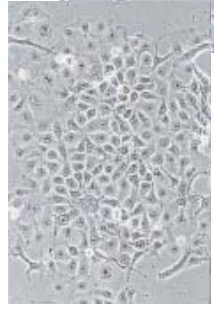
### Eyepieces

Featuring a 22mm field of view, the widest in this class of microscope, the TS100/TS100-F ensures clear images up to the periphery of the field of view even when using higher magnification objectives.



# Observation methods that provide the most information from your specimens

## Phase contrast microscopy has never been easier, thanks to Nikon's New Apodized Phase Contrast objectives



Monkey Kidney



Rat brain (Hla) cell

The phase contrast method doesn't require specimen staining, making it the ideal method for observing living cells and microorganisms. To improve images under this method, Nikon developed an innovative series of Apodized Phase Contrast objectives. These objectives produce images with excellent contrast and a much wider tonal range, shedding light on minute details within a specimen.

In addition, there is no need to change the annulus even when the 40X objective is selected. One condenser phase annulus works from 10X to 40X. The ELWD condenser achieves a long 75mm working distance and a high 0.30 numerical aperture, while delivering greater brightness.



TS100 configured with a phase contrast set

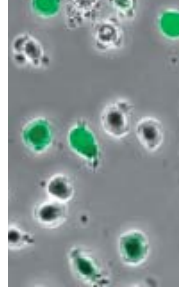


ELWD condenser and phase sliders



- ① CFI Plan Fluor DL4X (N.A. 0.12, W.D. 17.1mm) PH1
- ② CFI Achromat ADL10X (N.A. 0.25, W.D. 5.2mm) PH1
- ③ CFI Achromat ADL20XF (N.A. 0.4, W.D. 3.0mm) PH1
- ④ CFI Achromat LWD ADL40XF (N.A. 0.55, W.D. 2.1mm) PH1
- ⑤ CFI Achromat LWD ADL40XC (N.A. 0.55, W.D. 2.7-1.7 mm) PH2

## Epi-fluorescence method



T lymphocyte cell (GFP)



Breast cancer screening (DAPI)

This method is ideal for identifying fluorescently tagged substances within a cell, green fluorescent protein (GFP), and a myriad of other clinical and research applications. Epi-fluorescence observation utilizing UV-range light is also possible.



Epi-fl attachment



- ① CFI Plan Fluor DL4X (N.A. 0.13, W.D. 17.1mm) PH1
- ② CFI Plan Fluor DL10X (N.A. 0.3, W.D. 15.2mm) PH1
- ③ CFI Plan Fluor ELWD DM20XC (N.A. 0.45, W.D. 8.1-7.0 mm) PH1
- ④ CFI Plan Fluor ELWD DM40XC (N.A. 0.6, W.D. 3.7-2.7 mm) PH2
- ⑤ CFI Plan Fluor LWD (N.A. 0.3, W.D. 16.0mm)
- ⑥ CFI Plan Fluor ELWD 20XC (N.A. 0.45, W.D. 8.1-7.0 mm)
- ⑦ CFI Plan Fluor ELWD 40XC (N.A. 0.6, W.D. 3.7-2.7 mm)

TS100 configured with epi-fl attachment



CFI Achromat objectives

## Hoffman Modulation Contrast® method



HeLa cells in tissue culture vessel



Trichuris trichiura egg

This method is now possible with a microscope of this class. HMC creates vivid, 3-dimensional-like images of living, transparent specimens, allowing observation in plastic petri dishes—something that DIC does not do well.



HMC condenser



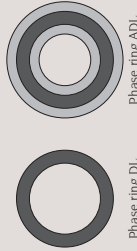
- ① CFI HMC LWD (N.A. 0.25, W.D. 5.2mm)
- ② CFI HMC LWD 20XF (N.A. 0.4, W.D. 3.0mm)
- ③ CFI HMC LWD 40XC (N.A. 0.55, W.D. 2.7-1.7 mm)

TS100 configured with an HMC set

## The Basic Principle of the Apodized Phase Contrast System

Nikon has succeeded in reducing halos in the image—considered difficult under phase-contrast microscopy—by improving the phase ring within the objective using a process called Apodization.

In an innovative design, Nikon analyzed different diffraction angles and the amount of phase differences created, then added extra light-absorbing bands to the Phase Ring DL. This improves vision under phase contrast microscopy, making it possible to observe cell division activities taking place within a specimen more clearly—hitherto often obscured by unwanted halos—or view finer details within a thick specimen.





# Accessories to expand your capabilities



## Mechanical stage

By attaching appropriate holders, various specimen slides and micro testplates can be mounted on this stage.



## Specimen plate holders

These specimen holders are available for use with the mechanical stage:

- ① Hemacytometer holder
- ② Terasaki holder (receptacle ø65mm petri dish)
- ③ Terasaki holder (receptacle ø65mm petri dish)
- ④ Slide glass holder (receptacle ø54mm petri dish)



## Auxiliary stages

For large specimens, you can widen the space on your plain stage by attaching a pair of auxiliary stages.



With a digital camera



With a CCTV camera

## Micromanipulators

The Eclipse TS100/100-F can be configured with Nikon/Nanishige micromanipulators and microinjectors for a variety of applications, including injections, aspiration, and incisions of cell tissues during cytoengineering, developmental and genetic engineering, electrophysiology, pharmacology, reproductive medicine, and neurochemistry.

## Photomicrographic systems including a CCTV or digital still camera

The TS100-F comes with a photo port that accepts photomicrographic systems such as the model H-III, featuring auto exposure, 1% spot, and 35% integrated average metering. Also a CCTV or digital still camera can be attached.



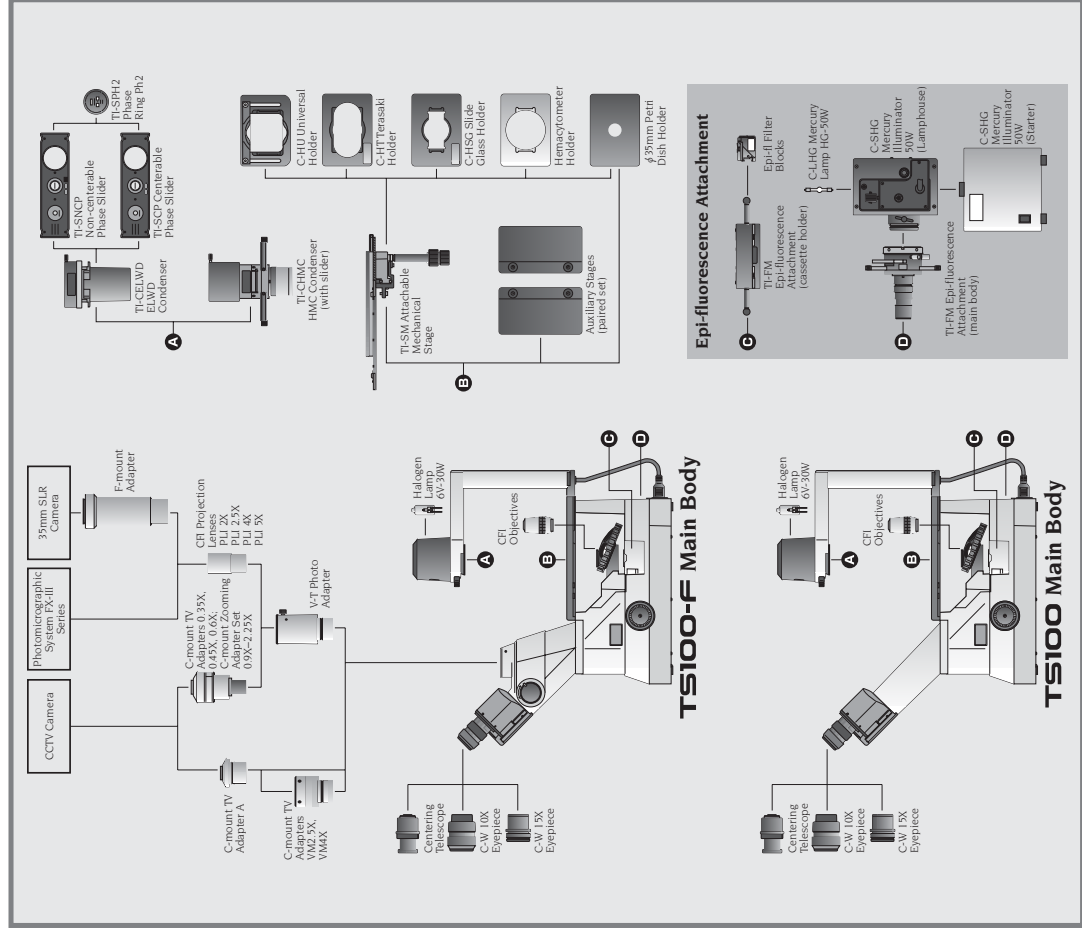
## CCTV adapters

These CCTV adapters are available as options:

- ① V-T photo adapter
- ② C-mount zooming adapter set 0.9X-2.2X
- ③ C-mount TV adapter 0.6X—recommended for 25" CCD camera
- ④ C-mount TV adapter 0.45X—recommended for 25" CCD camera
- ⑤ C-mount TV adapter 0.35X—recommended for 1/3" CCD camera
- ⑥ C-mount TV adapter VM4X
- ⑦ C-mount TV adapter VM2.5X
- ⑧ C-mount TV adapter A

Note: The ENG-mount type is also available for adapters 2, 3, 4, and 5.

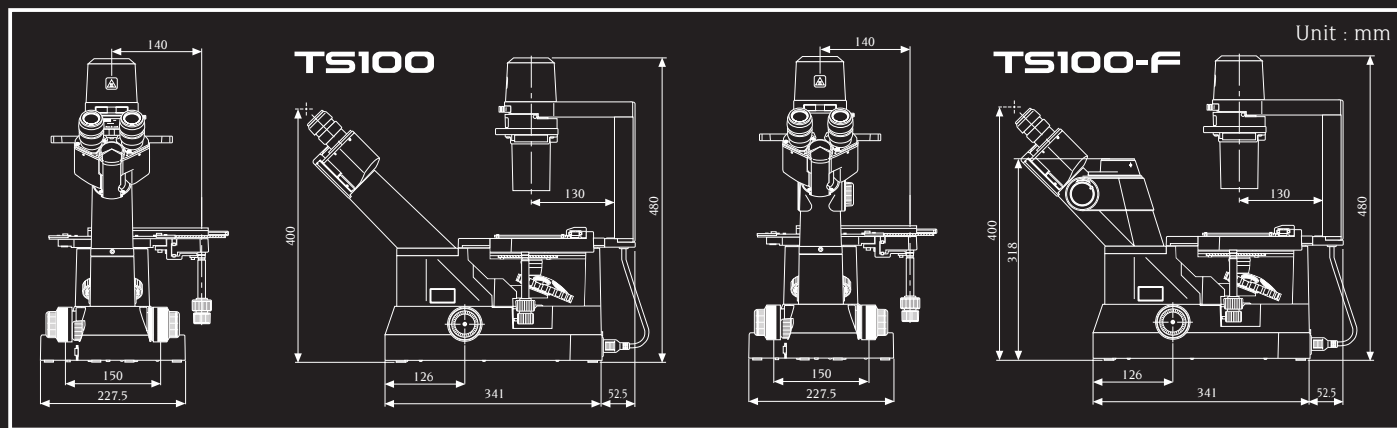
# System Diagram



# Specifications

	TS100 (Binocular model)	TS100-F (Trinocular model)
<b>Optical system</b>	CFI60 infinity system, parfocal distance 60mm	
<b>Main body</b>	Square box type with both-end support stage	
<b>Main body</b>	Vertical objective movement	
<b>Focusing</b>	Coarse stroke: 37.7mm per rotation, Fine stroke: 0.2mm per rotation	
<b>Eyepiece tube</b>	Siedentopf-type binocular tube	Siedentopf-type trinocular tube (light distribution, bino/photo: 100/0, 0/100)
	Interpupillary distance: 50–75 mm, Eyepoint height: 400mm from table, Inclination: 45° from horizon	
<b>Nosepiece</b>	Quintuple nosepiece, backward-facing type	
<b>Plain stage</b>	Stage size: 170 x 225 mm, Stage height: 195mm from table, Acrylic window provided, Auxiliary stage attachable	
<b>Illumination</b>	Pre-centered 6V-30W halogen lamp, Filter frame (accepts 2 filters), Heat absorbing filter and diffuser	
<b>Slider</b>	Non-centerable phase slider (PhL, Ph1, 1 empty position) Centerable phase slider (PhL, Ph1, 1 empty position), Ph2 ring (optional) HMC slider (MC1, MC2, MC3)	
<b>Attachable mechanical stage</b>	Stage movement: 126 x 80 mm Accepts several micro-testplate holders	
<b>Holder</b>	Terasaki holder (accepts $\phi$ 65mm petri dish) Slide glass holder (accepts $\phi$ 54mm petri dish) Hemacytometer holder	
<b>Filter</b>	45mm NCB11, ND8 and GIF (green interference)	
<b>Eyepiece lens</b>	C-W 10X (F.O.V. 22mm), C-W 15X (F.O.V. 16mm)	
<b>Condenser (without condenser O.D. 190mm)</b>	ELWD condenser: N.A. 0.3 (O.D. 75mm) HMC condenser: N.A. 0.4 (O.D. 44mm)	
<b>Epi-fluorescence attachment</b>	Field diaphragm, Fluorescence filter block holder (2 filter blocks mountable, 1 empty position), Heat absorbing filter, Lamphouse for 50W mercury lamp, Light shielding plate, UV-cut filter (detachable)	

Note: Hoffman Modulation Contrast and HMC are registered trademarks of Modulation Optics, Inc.



Specifications and equipment are subject to change without any notice or obligation on the part of the manufacturer. September 2002. ©1999-02 NIKON CORPORATION

	<b>WARNING</b>	TO ENSURE CORRECT USAGE, READ THE CORRESPONDING MANUALS CAREFULLY BEFORE USING YOUR EQUIPMENT.
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