Nikon

IC Inspection Microscopes

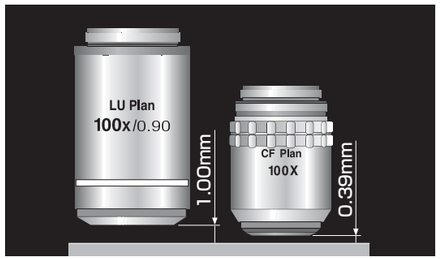
ECLIPSE

L200
L200D

CFI60

Redefining the standard in IC ins pection microscopy by adopting Nikon's CFI60 optical design

With the adoption of Nikon's highly acclaimed CFI60 optical system in the Eclipse L200 series, a new order of optical performance has been achieved. But Nikon didn't stop there. They improved the ergonomic design of these microscopes and made them more resistant to vibrations.
The result: a new standard for IC inspection microscopy for the 21st century. Used independently, or in combination with wafer loaders, the L200 series is designed to perform optical inspection of wafers, photo masks, reticles and other substrates with exceptional precision.



CFI60 objective Conventional Nikon objective

Long working distances and high N.A.'s

Thanks to a 60mm parfocal distance, the L200 series succeeds in achieving both longer working distances and higher numerical apertures throughout the entire magnification range. What you get are ultrahigh- resolution images while insuring safe wafer handling.

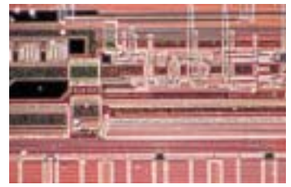
CFI60

A revolution in optics, the CFI60 system combines Nikon's renowned CF design with infinity optics

To obtain outstanding optical performance, Nikon adopts a completely new design for their objectives, including a 60mm objective parfocal distance. These new optics provide longer working distances and high N.A.'s, while producing images that are crisp and clear with high contrast and minimal flare.

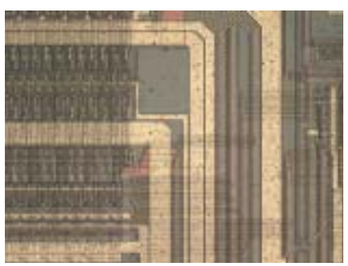
Improved illumination and greater depth of focus

A new illumination system produces a Signal/Background Ratio during darkfield observations that is nearly three times greater than current models. This improves the sensitivity of these microscopes under darkfield observations to detect minute scratches and surface irregularities within the sample.
During brightfield observations, the pinhole illumination technique using a metal halide illuminator (option) creates a greater depth of focus.



Darkfield observation

Brightfield observation

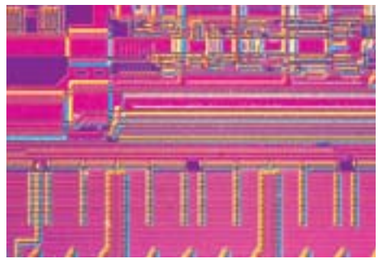


Excellent clarity and high contrast with minimal flare

Designed to correct chromatic aberrations over the entire field of view, Nikon's new CFI LU Plan objectives produce images that are of high contrast, extremely sharp, and have a minimum of flare. This was made possible by applying special coatings to the lenses and reducing the number of reflections within the eyepiece tube.

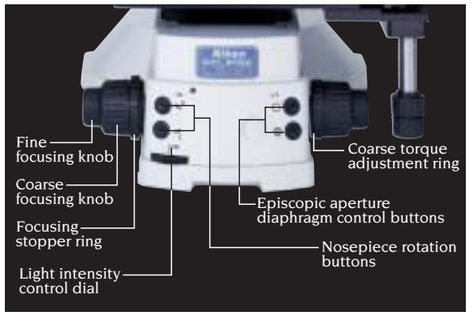
Improved DIC microscopy

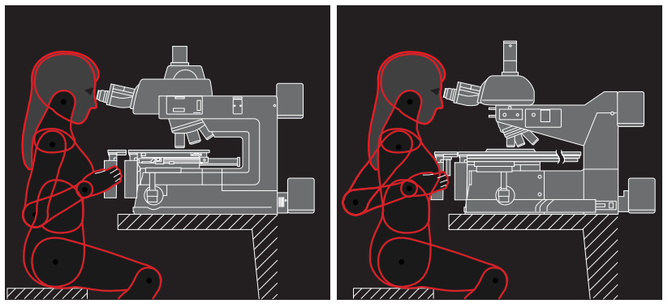
New CFI LU Plan objectives allow the use of multiple observation techniques, including brightfield, darkfield, and Nomarski DIC using a single objective. For DIC, simply insert a single Nomarski prism into the nosepiece that works for all magnification ranges.



Ergonomic design for comfortable viewing

SEMI S2-0200, S8-0600 compliant design





ECLIPSE L200D

Conventional model

Incorporating a SEMI-compliant design, controls and knobs are positioned low and close to the operator while the eyepoint is set at the ideal height for comfortable operation. With the controls located comfortably in the microscope base, hand movement is minimal, allowing concentration on the inspection process. The eyepiece is moved closer to the operator so that he or she can assume a more erect sitting posture. This also positions the operator farther from the stage to provide a more ergonomic and safe viewing position.

Tilting eyepiece tube

The eyepiece tube is of the trinocular tilting type, allowing continuous adjustment of the tilt angle from 0˚ to 30˚ for viewing at the optimum eyepoint level. The eyepiece also features an ultrawidefield design and has an F.O.V. of 25mm.

Fixed-position X-Y fine-movement controls

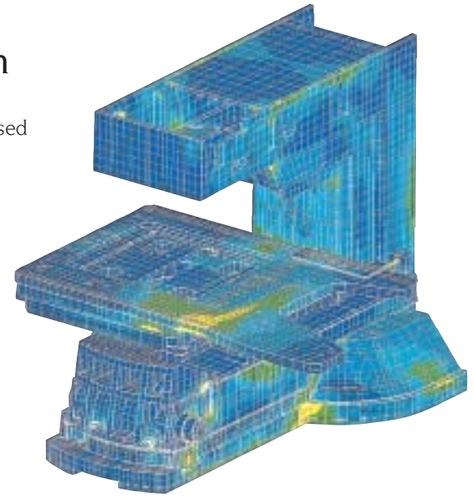
The X-Y fine-movement controls stay at the same position.

The X-Y fine-movement controls remain in the same position, close to the front, for a comfortable viewing posture regardless of the stage position. In addition, these controls, plus the focus knob, are located close to each other, so you can operate both with one hand.

Improved accuracy and greater reliability

Vibration isolation

Applying computer-aided engineering (CAE), Nikon increased the rigidity of the L200 series dramatically, making these microscopes three times less susceptible to floor vibrations when compared with conventional equipment. This, in turn, reduces the chance of unwanted blur or image shifts even during high magnification observations. While this superior design increases stability, it also resulted in a smaller footprint.



Safeguards against contamination

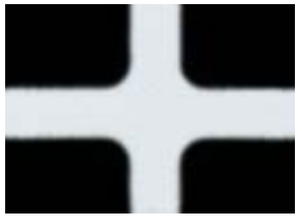
The bodies of these microscopes are finished with electrostatic discharge coatings to prevent foreign particles from adhering to the microscope. Furthermore, the motorized nosepiece uses a shielded center-motor that traps foreign particles inside, preventing them from falling onto the sample.

Motorized nosepiece with software control

The built-in nosepiece is a motorized sextuple type with a slot for DIC attachment. In addition to a mechanical click stop, this nosepiece is controlled by software to stop precisely at each objective position. The improved accuracy also dramatically increases the durability of the nosepiece. Moreover, when the nosepiece is rotated, the illumination is cut momentarily to protect the operator's eyes.

Focus target

The addition of a focus target that easily moves in and out of the optical path allows for easier focusing on bright samples such as bare wafers.



A cross line in the viewfinder makes for easy manual focusing.

Accessories to broaden your applications

CFI LU/L Plan series objectives


CFI LU Plan Epi


CFI LU Plan BD


CFI LU Plan Epi ELWD


CFI LU Plan BD ELWD

Type	Magnification	N.A.	W.D. (mm)
CFI LU Plan Epi*	5X	0.15	23.50
	10X	0.30	17.30
	20X	0.45	4.50
	50X	0.80	1.00
	100X	0.90	1.00
CFI LU Plan Epi ELWD*	20X	0.40	13.00
	50X	0.55	10.10
	100X	0.80	3.50
CFI L Plan Epi SLWD*	20X	0.35	24.00
	50X	0.45	17.00
	100X	0.70	6.50
CFI LU Plan Apo Epi*	150X	0.95	0.30
CFI L Plan Apo Epi WI*	150X	1.25	0.25
CFI LU Plan BD	5X	0.15	18.00
	10X	0.30	15.00
	20X	0.45	4.50
	50X	0.80	1.00
	100X	0.90	1.00
CFI LU Plan BD ELWD	20X	0.40	13.00
	50X	0.55	9.80
	100X	0.80	3.50
CFI LU Plan Apo BD	150X	0.90	0.42

* A nosepiece adapter is needed to use this objective.

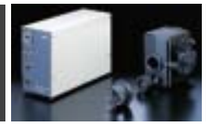
Photomicrography and CCTV monitoring

The following equipment can be attached to the trinocular photo port:
- Digital still cameras
- FX-III series photomicrographic systems
- CCTV cameras

Adapters for CCTV cameras come in C-mount and ENG-mount types.

Illumination systems


12V-100W halogen lamphouse


100W mercury lamphouse


150W metal halide lamphouse


75W xenon lamphouse

Wafer holders and mask holders

① 8-inch (200mm) wafer holder
② 6-inch (150mm) wafer holder

① 6-inch (150mm) mask holder
② 5-inch (125mm) mask holder
③ 4-inch (100mm) mask holder

Eclipse L200D supports both episcopic and diascopic illumination techniques

The Eclipse L200D is recommended for users who require diascopic illumination and is ideal for inspecting LCD's and masks.

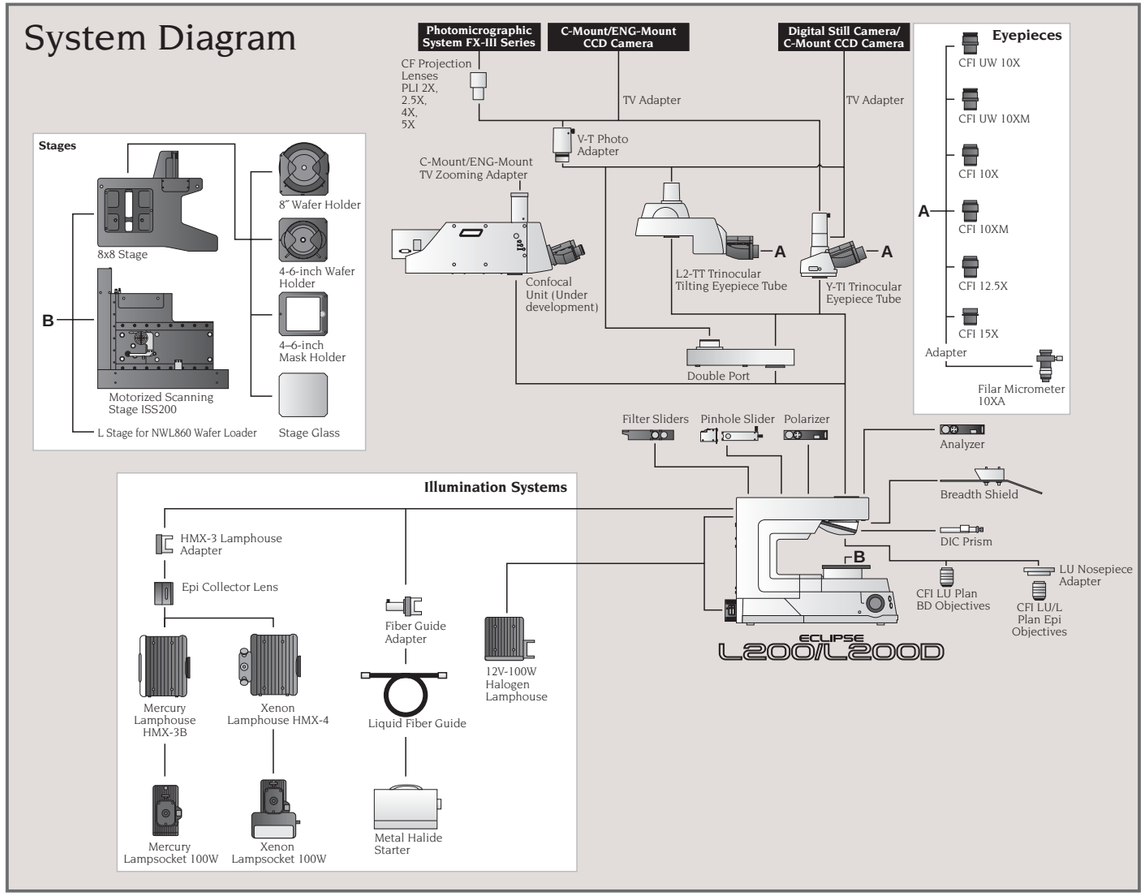
Best match with NWL-860 series wafer loaders

Nikon's NWL-860 series wafer loaders are the best match for the Eclipse L200, when building a wafer inspection system at a minimum cost.

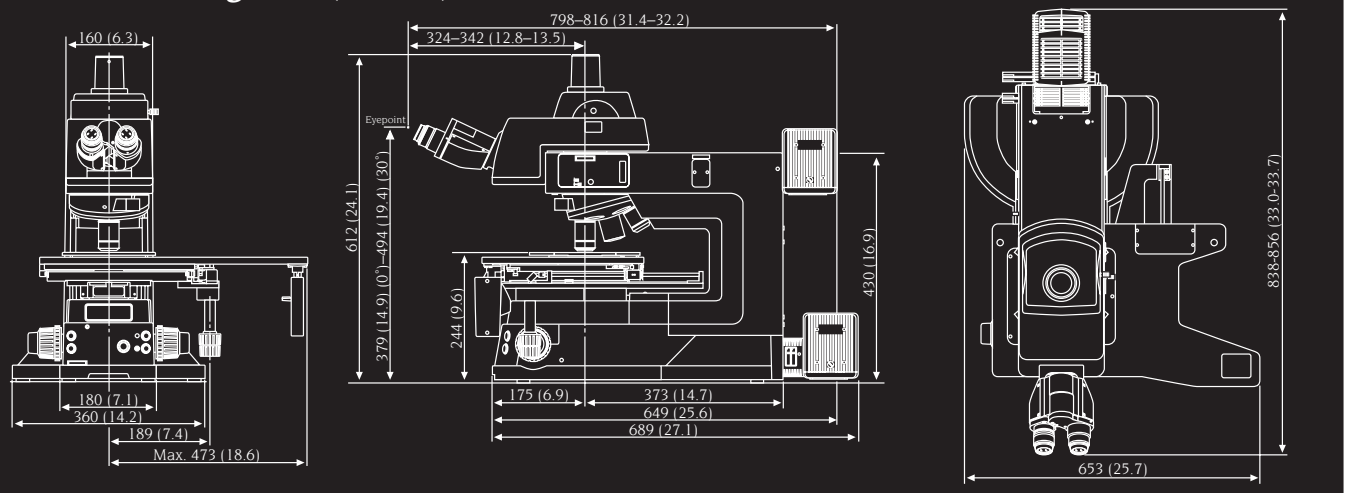

L200 configured with NWL-860 INX


L200 configured with NWL-860TMB SP

System Diagram



Dimensional Diagrams (L200D)



Unit: mm (inch)

Specifications

	Eclipse L200 (Episcopic illumination type)	Eclipse L200D (Diascopic/episcopic illumination type)
Main body	12V-100W halogen lamp light source built-in; power sources for motorized control built-in Motorized control for nosepiece, light intensity control, aperture diaphragm control	
	—	Dia./epi. changeover
Focusing mechanism	Cross travel: 29mm, Coarse: 12.7mm per rotation (torque adjustable, refocusing mechanism provided), Fine: 0.1mm per rotation (in 1µm increments)	
Episcopic illuminator	12V-100W halogen lamp light source built-in Motorized aperture diaphragm (centerable) Fixed field diaphragm (with focus target) Pinhole slider (optional) can be mounted Four ø25mm filters (NCB/ND4, 16/GIF) can be mounted. Polarizer, Analyzer	

	Eclipse L200	Eclipse L200D
Diascopic illuminator	—	12V-100W halogen lamp light source built-in Aperture diaphragm built-in LWD condenser built-in
Nosepiece	Fixed-motorized sextuple universal nosepiece Slot for DIC attachment provided	
Eyepiece tube	Ultrawidefield tilting trinocular eyepiece tube (tilt angle: 0°–30°; erect images) F.O.V.: 25mm Optical path changeover: 2-way (Bino: Photo 100:0/0:100)	
Stage	8x8 Stage, Stroke: 205 x 205 mm (diascopic observation range: 150 x 150 mm) Coarse/fine-movement changeover possible Fixed-position X-Y fine-movement controls	
Eyepieces	CFI eyepiece lens series	
Objectives	CFI LU/L Plan series	
Weight	43.75kg (96.45lb.) (when 8x8 Stage and L2-TT Eyepiece Tube are used.)	44.45kg (97.99lb.) (when 8x8 Stage and L2-TT Eyepiece Tube are used.)

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

Specifications and equipment are subject to change without any notice or obligation on the part of the manufacturer. November 2000.

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