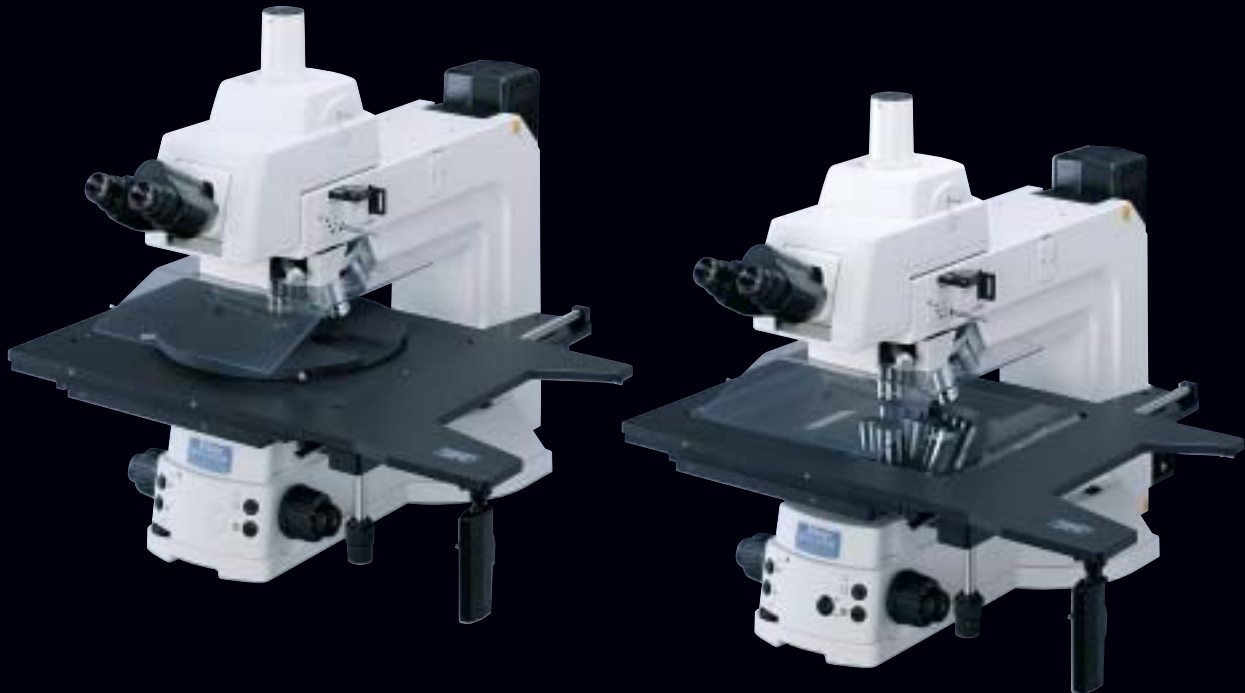




FPD/LSI Inspection Microscopes

**ECLIPSE**

**L3000**  
**L3000D**



**CFI60**

# Nikon's acclaimed CFI60 optics achieves new levels of brightness, contrast and operability, providing support to advanced inspection of large-size LCDs and wafers



## ECLIPSE L300 (Episcopic Illumination Type)

Max. sample size:  $\phi$ 300mm wafers  
Stage stroke: 354 x 302mm  
Magnification range: 15X – 2000X  
(depends on eyepiece and objective)



## ECLIPSE L300D (Diascopic/Episcopic Illumination Type)

Max. sample size: 17-in. flat-panel displays (FPD)  
Stage stroke: 354 x 302mm  
(diascopic illumination range: 354 x 268mm)  
Magnification range: 15X – 2000X  
(depends on eyepiece and objective)

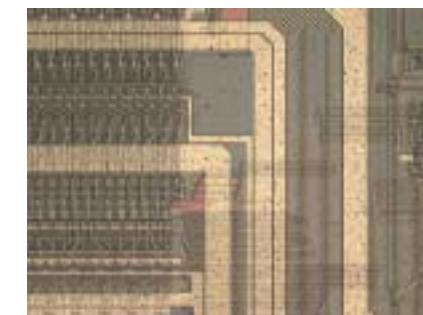


## Advanced motorized universal nosepiece

The built-in nosepiece is a universal motorized sextuple type with three centerable slots. Image shifts that occur during magnification change can be minimized by using objectives with improved centricity and a nosepiece with a centering function. Illumination is also momentarily cut to protect operators' eyes when the nosepiece is rotated.

## High contrast with minimal flare

To minimize flare, Nikon has applied special coatings to the objectives and formed their surfaces to prevent stray light. Nikon has further reduced the chance of flare by cutting the number of reflections inside the eyepiece tube, achieving high contrast never before possible.



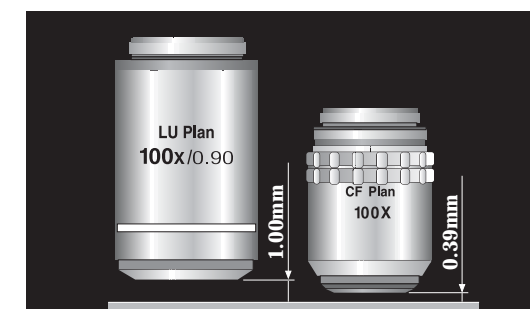
# CFI60

## The culmination of Nikon's optical technology

The L300 series utilizes the CFI60 optical system — a fusion of Nikon's renowned CF design and the excellent performance of the Nikon infinity optics. The CFI60 offers high resolution, contrast and transmittance, and provides the world's highest level of optical performance. Image brightness has been dramatically improved compared to conventional microscopes, making the new series suitable for various kinds of inspections.

## Long working distance and high N.A.

Taking advantage of the 60mm parfocal distance, the new series provides longer working distance while maintaining higher numerical aperture. The CFI60 offers both image brightness and ease of operation. Furthermore, optical centricity has been improved to minimize image shifts that might occur when changing the objective magnification.



CFI60 objective      Conventional Nikon objective

## Focusing target

The focusing target moves easily in and out of the optical path to allow easier focusing on low-contrast samples such as bare wafers.



The target in the viewfinder allows easy manual focusing.



# Ergonomic design for comfortable viewing—less fatigue, greater efficiency

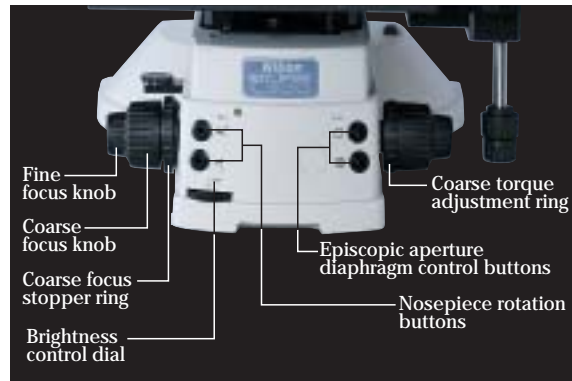
## Tilting trinocular eyepiece tube

The tilting trinocular eyepiece tube is the ultrawidefield F.O.V. 25mm type. The eyepiece angle can be set between 0° and 30°, allowing users to set their optimum eyepoint level to ensure comfortable viewing posture. Two types are available offering different observation/photo optical path ratios: L2-TT2 (100 : 0 / 20 : 80) and L2-TT (100 : 0 / 0 : 100).



## Controls concentrated in the front

The main control knobs and buttons are located in the front of the base to allow quick, easy operation while viewing samples, and minimize fatigue during lengthy observations.



## Stronger safeguards against electrostatic

Electrostatic-discharge coatings have been applied to the body, stage, eyepiece tube (L2-TT2 type), and various controls. This strengthens safeguards against contamination and prevents damage to samples induced by electrostatic, thus contributing to higher yields.



## Fixed-position X-Y fine movement control

The X-Y fine movement control remains in the same position\* close to the operator, making it unnecessary for the operator to extend his or her arm to move the stage. Because moving the specimen and focusing can be carried out with one hand resting on the desk, the operator can focus on observation.

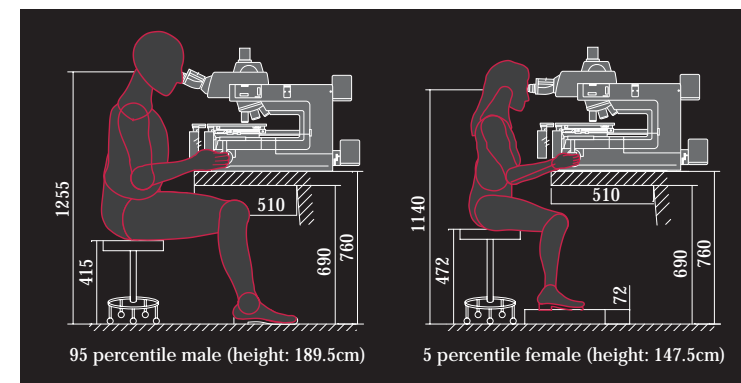
\*Patent pending



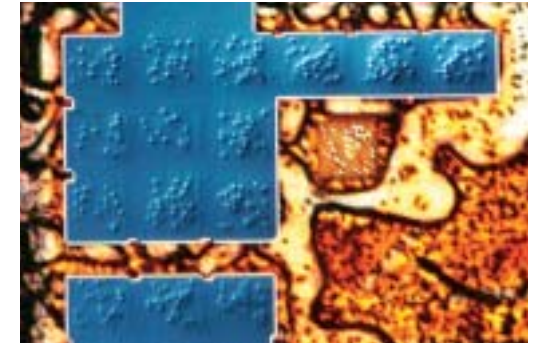
The X-Y fine movement controls stay at the same position.

## SEMI-compliant design

The L300/L300D complies with Semiconductor Equipment and Materials International (SEMI) guidelines for safety (S7-0703) and ergonomics (S8-1103). As the eyepiece is positioned closer to the operator, the stage does not touch the operator even when it is moved toward him or her, ensuring safe, comfortable viewing.



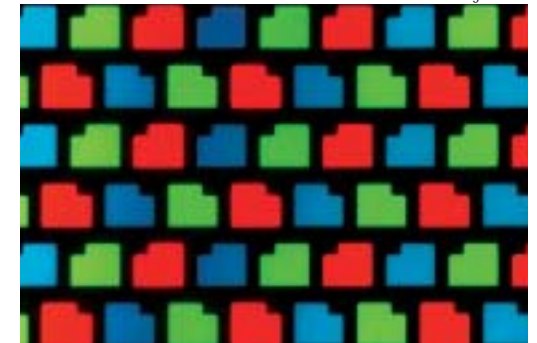
CFI LU Plan BD 20X objective



## Nomarski DIC observation

The L300/300D adopts a single prism (Senarmont) system, which enables DIC observations at all magnifications by simply inserting a single Nomarski prism into the nosepiece. DIC images are clear and crisp with minimal color shades, even at low magnifications. A high-contrast-type DIC slider permits the formation of DIC images with greater sensitivity.

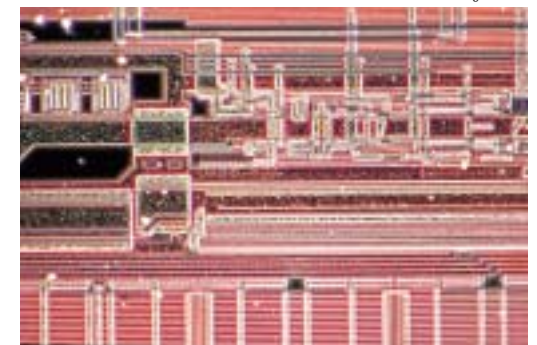
CFI LU Plan BD 10X objective



## Brightfield observation

Nikon's CFI60 system—a successful merger of the CF optical system with infinity optics—contributes to bright, high-contrast images.

CFI LU Plan BD 50X objective



## Darkfield observation

The newly developed darkfield illumination optics dramatically enhances image brightness and improves detection capability of minute scratches and topographies within a sample.

# Accessories to achieve optimum results

## CFI LU/L Plan series objectives

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



CFI LU Plan Epi



CFI LU Plan BD



CFI LU Plan Epi ELWD



CFI LU Plan BD ELWD

\* A nosepiece adapter is needed to use Epi-type objectives.

## Digital cameras for all digital imaging needs (option)

### Digital Camera for microscopes

#### Digital Sight DS-5M Series

- High-resolution 5-megapixel images (effective pixels: 2560 x 1920).
- One-click image capture by clicking the desired Scene Mode button depending on the sample type such as semiconductor wafers, metals, and PCBs.
- High-speed display of 15 frames/sec. max. (center scan mode, center 1/2 display).
- A wide variety of tool functions including Two-point Distance Measurement, Count Marking, Scale Display.



DS-5M-L1

#### DS-5M-L1

- Standalone design eliminates the need for a PC—the camera control unit houses a 6.3-in. LCD monitor and CompactFlash card slot.
- Network capabilities including Ethernet 10/100Base-TX.
- USB2.0 interface for high-speed transfer to PC.
- Dedicated software enables the display of live preview, thumbnail, and menu for image capture on a single screen.

#### DS-5M-U1

- USB2.0 interface for high-speed transfer to PC.
- Dedicated software enables the display of live preview, thumbnail, and menu for image capture on a single screen.

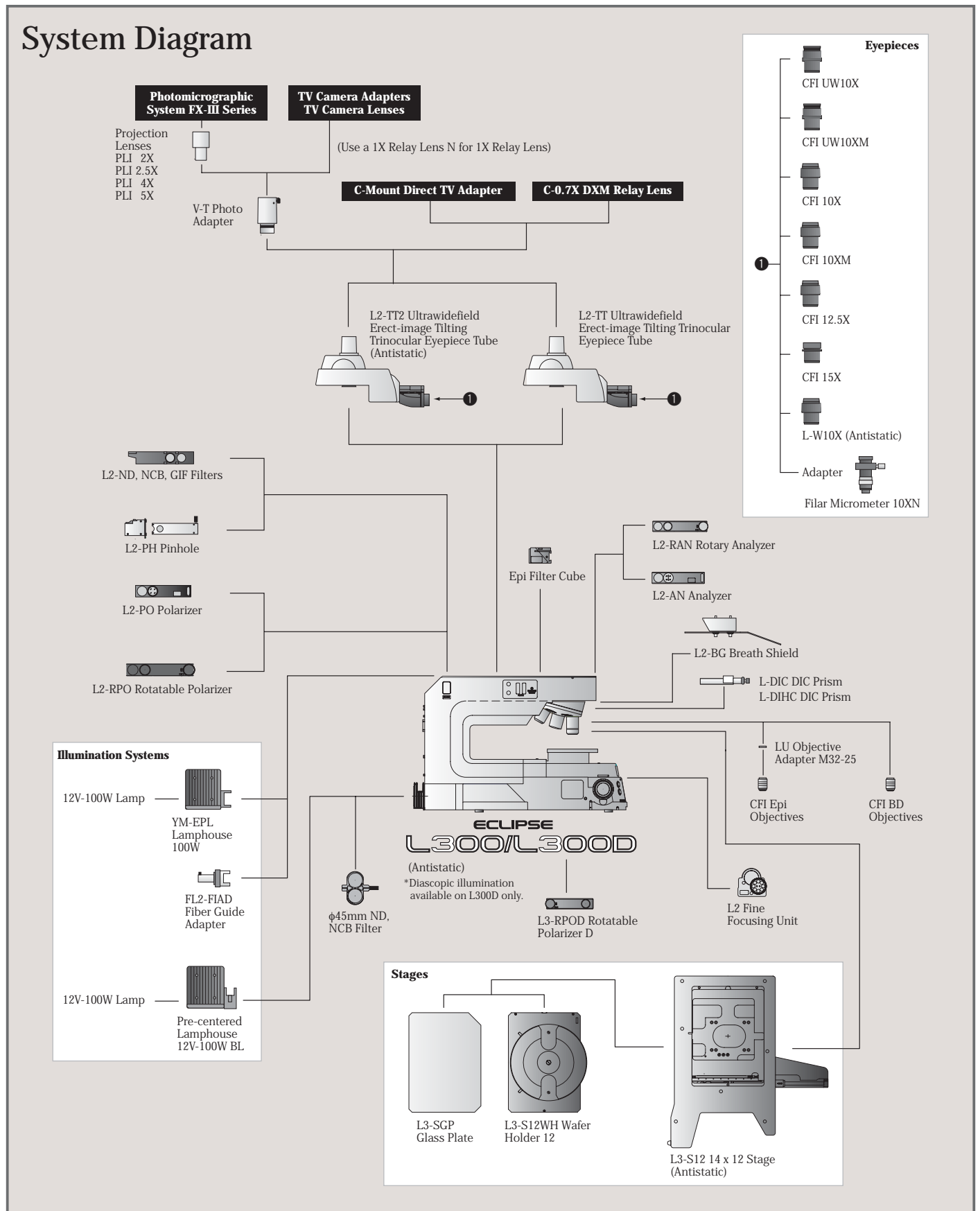
### High-definition Digital Camera for microscopes

#### DXM1200F

- Ultrahigh-definition images composed of approximately 12 million (3840 x 3072) output pixels.
- High-speed transfer rate of 12 frames/sec. max. enables the live preview of images.
- Image capture with a sensitivity nearly 2.5 times greater than previous Nikon models.
- Display of live preview, still image, and thumbnail on a single screen for quick image capture.
- The camera's software features various advanced functions, including auto naming of image files, sort and save, scale display, and annotation overlay.

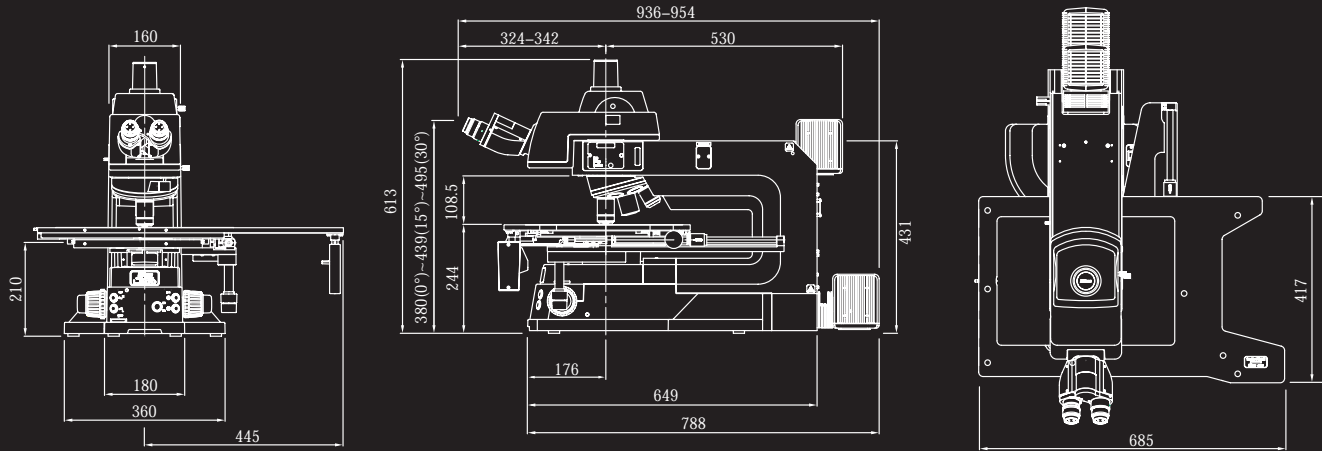


## System Diagram



# Dimensional Diagrams (L300D)

Unit: mm (inch)



## Specifications

Main body	Power source: 12V-100W illuminator power source built-in; power source for motorized control built-in Focusing mechanism: Stroke 29mm Coarse: 12.7mm/rotation (torque adjustable, with refocusing mechanism) Fine: 0.1mm/rotation (in 1μ increments) Control: Nosepiece rotation, Light intensity control, Aperture diaphragm open/close, Diascopic/episcopic illumination switching (L300D only) Nosepiece: Motorized universal sextuple nosepiece (with centering mechanism and DIC prism slot)	Eyepiece tube	L2-TT2 ultrawidefield erect-image tilting trinocular eyepiece tube (tilt angle: 0-30°): F.O.V. 25; Beamsplit ratio 100 : 0 / 20 : 80 L2-TT ultrawidefield erect-image tilting trinocular eyepiece tube (tilt angle: 0-30°): F.O.V. 25; Beamsplit ratio 100 : 0 / 0 : 100 YM-T12 erect-image trinocular eyepiece tube: F.O.V. 25; Beamsplit ratio 100 : 0 / 0 : 100
Episcopic illuminator	12V-100W halogen lamp illuminator Motorized aperture diaphragm (centerable) Field diaphragm (fixed, with focus target) Pionhole slider (option) mountable φ25mm filters (NCB11, ND16, ND4) mountable Polarizer/analyzer mountable One epi filter cube (V, BV, B, G) mountable	Stage	14 x 12 stage: Stroke 354 x 302 mm (diascopic illumination observation range: 354 x 268 mm) Coarse/fine-movement changeover possible Fixed-position X-Y fine-movement control
Diascopic illuminator (L300D only)	12V-100W halogen lamp illuminator Aperture diaphragm, Field diaphragm (centerable) φ45mm filters (NCB11, NDA, NDB) mountable Polarizer mountable LWD condenser built-in (with up/down movement mechanism)	Eyepieces	CFI eyepiece lens series
		Objectives	CFI LU/L Plan series
		Antistatic mechanism	1000-10V, within 0.2 sec.
		Power consumption	2.4A/100W
		Dimensions	Approx. 360 (W) x 613 (H) x 954 (D) mm (at tilt angle 10°)
		Weight	Approx. 64kg

Specifications and equipment are subject to change without any notice or obligation on the part of the manufacturer. May 2004.

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**WARNING**

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



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