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Find the *Nikon Epiphot 200* at our website: *Click HERE*

Nikon

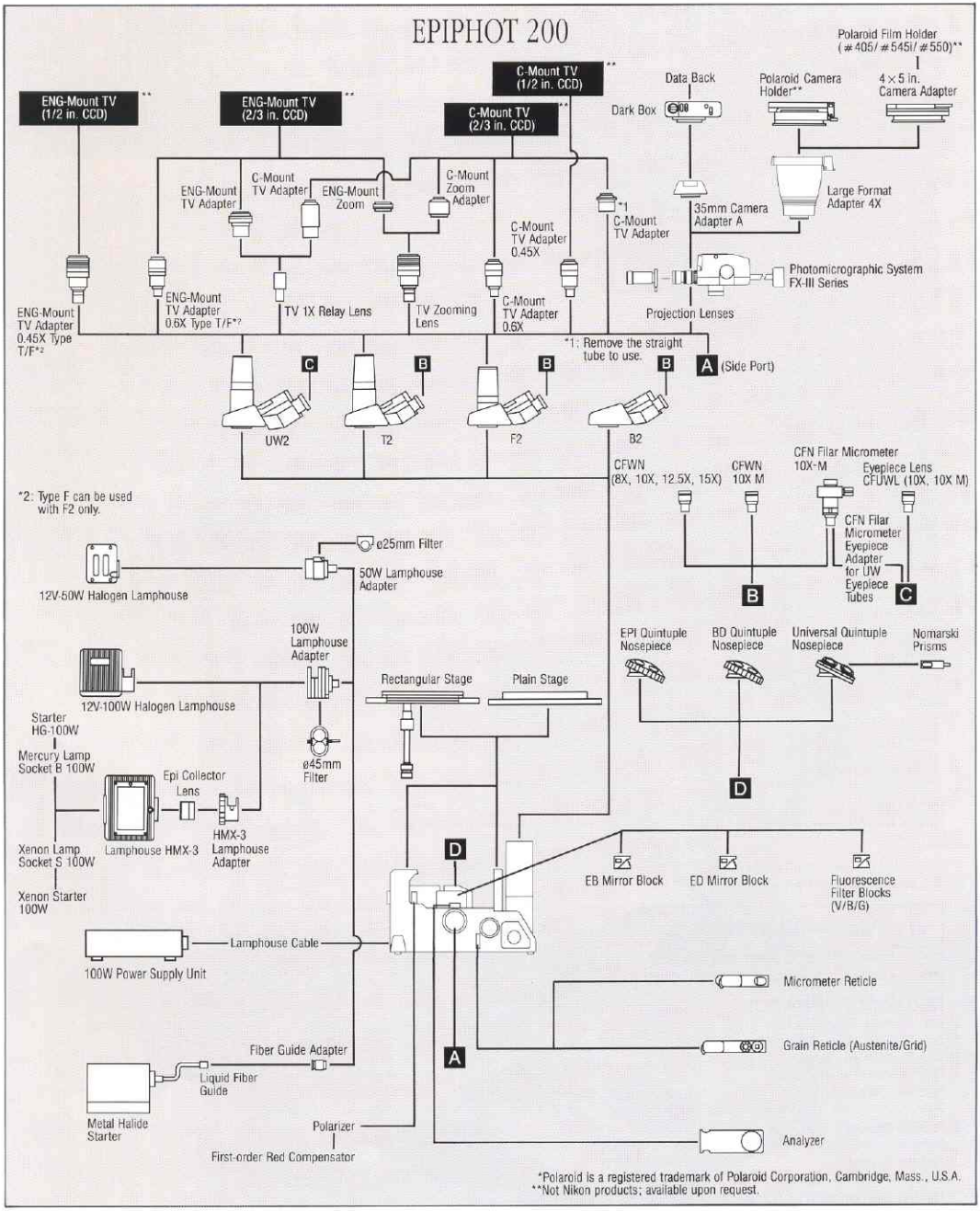
Inverted Metallurgical Microscopes

EPIPHOT 300U/200

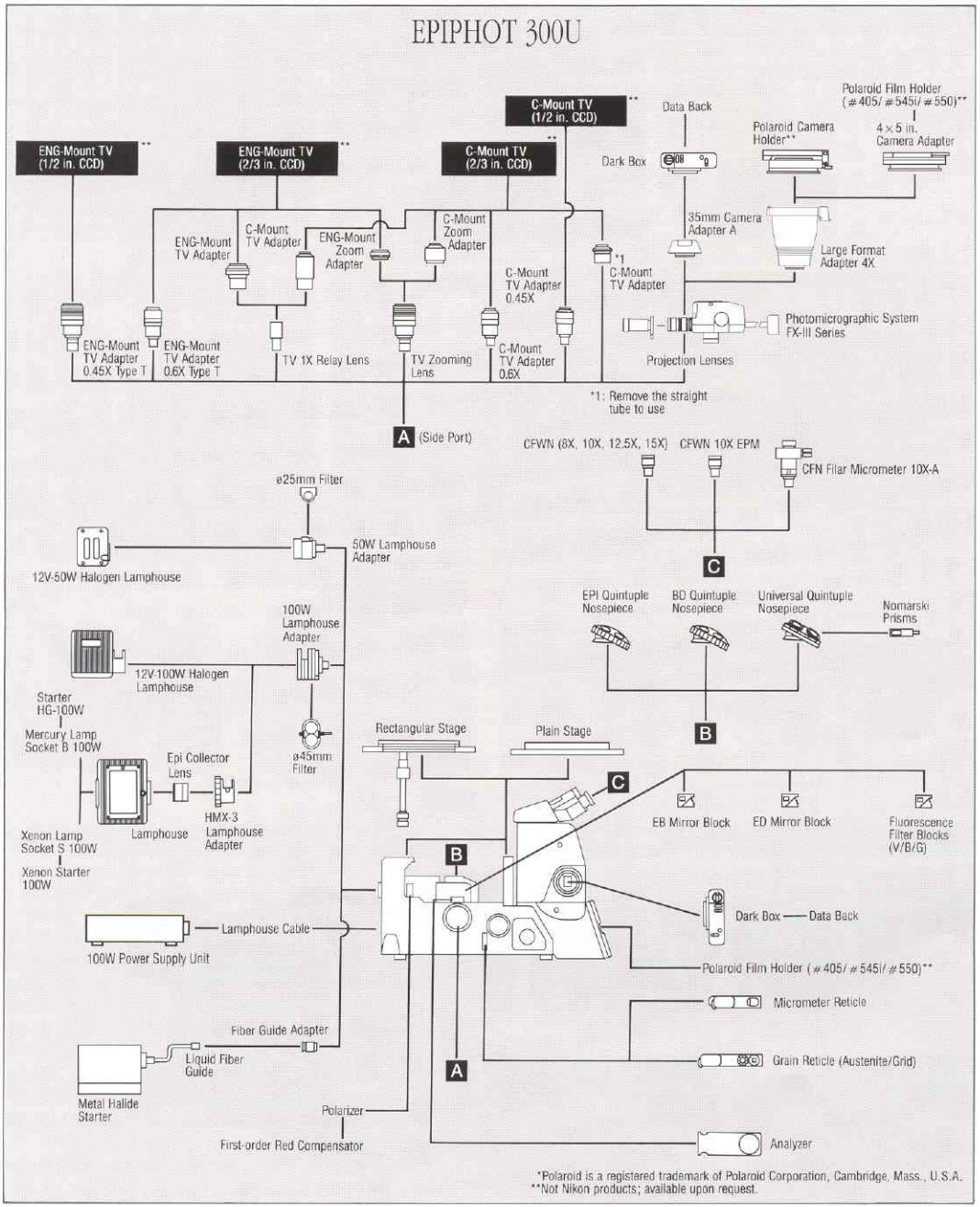


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Diagrams



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Eyepiece Tubes (EPIPHOT 200 only)

Select from four types of eyepiece tubes available for the EPIPHOT 200.



Binocular eyepiece tube B2



Trinocular eyepiece tube F2



Trinocular eyepiece tube T2

Eyepiece Tubes

	B2	F2	T2	UW2
Field number	20			25
Tilt angle	30°			
Pupil distance range	51 ~ 75 mm			53 ~ 75 mm
Light distribution ratio (Observation: photo)	100:0	100:0/0:100	100:0/14:86/ 0:100	100:0/14:86
Detachable straight tube	–	Yes		Yes



Ultra widefield eyepiece tube UW2

FX Series Photomicrographic Systems (For EPIPHOT 200)

Nikon's FX-III Series photomicrographic systems employ the swing-out beam splitter system which directs 100% of the illumination to the film plane. You have a choice of three models: the auto-exposure U-III, H-III and the manual-exposure P-III. The Dark Box FDX-35 reads DX coded 35mm film.

- U-III: Top-end model with 0.1% and 1% spot exposure measurement and 35% integrated average measurement
- H-III: Auto-exposure model with 1% spot and 35% integrated average measurement
- P-III: Manual exposure model

*For detailed information, see the FX-III brochure from Nikon.



EPIPHOT 200 with photomicrographic system

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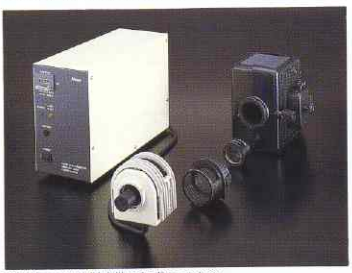

12V-50W halogen illumination system and ø25mm filters


12V-100W halogen illumination system

Illumination System

A 12V-100W halogen illuminator is standard. Four additional types of high-intensity illumination systems are available: 12V-50W halogen, metal halide, mercury, and xenon.


150W metal halide illumination system

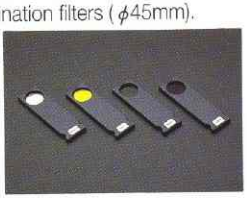

100W mercury (Hg) illumination system


100W xenon (Xe) illumination system and ø45mm filters

Filters

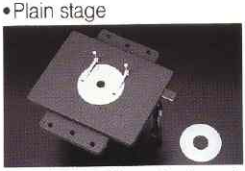
Two filter types are available: reflected illumination filters (ϕ25mm), and transmitted illumination filters (ϕ45mm).

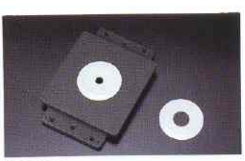

45mm Filters


25mm Filters

Stages

- Vertical mechanical handle stage with cross-travel range of 70×50 mm (2.8×2 in.)
- Plain stage


Rectangular stage with cross-travel range of 70 × 50 mm (2.8 × 2 in.)


Plain stage

CCTV Adapters

Nikon offers CCTV adapters for both a standard C-mount thread mount and an ENG-type bayonet mount.

- No relay lenses are necessary with C-mount TV Adapter (can be directly attached).
- A newly developed TV adapter with a built-in reduction relay lens permits observation on the monitor of an area equivalent to the viewfield seen through the eyepiece. Two C-mount and two ENG-mount models each are available for 1/2 in. (0.45X) and 2/3 in. (0.6X) CCD camera types. The ENG-mount models are available in type T or F according to the eyepiece tube used. Type T should be used for the side port. Type F is used with eyepiece tube F2.
- The C-mount TV adapter and the ENG-mount TV adapter both require a 1X relay lens.
- The TV zooming C-mount adapter and the CCTV zooming ENG-mount adapter both require a TV zooming lens (0.9 ~ 2.25X).



C-mount TV Adapter


C-mount types 0.6X (For 2/3 in. CCD), 0.45X (For 1/2 in. CCD)


ENG-mount 0.45X Type T-F (For 1/2 in. CCD)


ENG-mount 0.6X Type T-F (For 2/3 in. CCD)


ENG-mount type, C-mount type, 1X relay lens


ENG-mount type, C-mount type, TV zooming lens

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Revolving Nosepieces



From left to right: Quintuple brightfield EPI type, quintuple bright/darkfield type, and quintuple universal type.

You have a choice of three revolving nosepieces for your individual applications: quintuple brightfield EPI type, quintuple bright/darkfield type and quintuple universal type. An objective lens adapter allows you to use an EPI Plan objective with the bright/darkfield or universal revolving nosepiece.



Objective adapter

Reticle Imprinting (Option)

Because the reticle is inserted at the primary image plane position, the micrometer maintains fine focus regardless of the state of the sample surface being observed.



Micrometer reticle



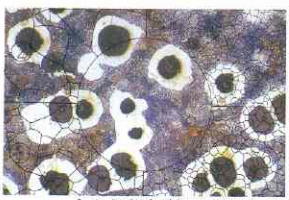
Micrometer (scale for 20X objectives)

Micrometer Reticle

Scales corresponding to objectives with 5X to 100X magnifications are available as options. Scales can be changed according to the objectives in use, with the scale inserted in the stand.



Grain reticle (Austenite/grid)



Austenite (grain sizing numbers 1 ~ 8)*

Grain Reticle (Austenite/Grid)

ASTM*-standard Austenite reticle with grain sizing numbers ranging from 1 through 8 for measuring iron and steel organizations or grids can be imprinted along with specimen images. The grid consists of 20 lines 0.5mm apart.

*ASTM: The American Society for Testing and Materials



Grid (20 lines 0.5mm apart)*

*Intermediate magnification 0.8X

Data Back and Film Holders (For EPIPHOT 300U)



35mm dark box with data back



Polaroid* pack film holder (#405/#550)



Polaroid* sheet film holder (#545i)



Snap-up camera hood

*Polaroid is a registered trademark of Polaroid Corporation, Cambridge, Mass., U.S.A.

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CF Objectives


CF Plan EPI


CF Plan EPI


CF Plan EPI ELWD


CF Plan EPI SLWD


CF Plan Apo EPI

These updated objectives reduce aberration and keep flare down to a minimum.

List of Objectives

Type	Magnification	N.A.	W.D. (mm)
CF Plan EPI	*1.5X	0.045	3.6
	2.5X	0.075	8.8
	5X	0.13	22.5
	10X	0.3	16.5
	20X	0.46	3.1
	50X	0.8	0.54
	100X	0.95	0.3
CF Plan EPI ELWD	20X	0.4	11.0
	50X	0.55	8.7
	100X	0.8	2.0
CF Plan EPI SLWD	10X	0.21	20.3
	20X	0.35	20.5
	50X	0.45	13.8
	100X	0.73	4.7
CF Plan Apo EPI	50X	0.95	0.35
	100X	0.95	0.32
	150X	0.95	0.2
	200X	0.95	0.2
CF LCD Plan CR (with cover glass correction 0.6 ~ 1.2mm)	20X	0.4	10.1 ~ 10.5
	50X	0.55	7.7 ~ 8.1
	100X	0.8	1.1
CF Plan BD	5X	0.13	10.0
	10X	0.3	6.5
	20X	0.46	3.1
	50X	0.8	0.54
	100X	0.9	0.39
CF Plan BD ELWD	20X	0.4	11.0
	50X	0.55	8.2
	100X	0.8	2.0
CF Plan Apo BD	50X	0.9	0.42
	100X	0.9	0.4
	150X	0.9	0.29
	200X	0.9	0.3
CF Plan BD DIC	5X	0.13	10.0
	10X	0.3	6.5
	20X	0.46	3.1
	50X	0.8	0.54
	100X	0.9	0.39
CF Plan BD ELWD DIC	20X	0.4	11.0
	50X	0.55	8.2
	100X	0.8	2.0

For further information, see "OPTIPHOT Series" or "OPTIPHOT 100S" brochure.
*Use a polarizer and an analyzer. For standard field of view (F.N. 20)


CF Plan BD


CF Plan BD ELWD


CF Plan Apo BD


CF Plan BD DIC

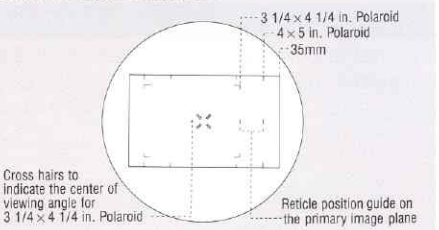

CF Plan BD ELWD DIC

CF Eyepieces

		F.N.	EPIPHOT 300U	EPIPHOT 200
CFUWL	10X	25	×	○
CFUWL	10X M	25	×	○
CFWN	8X	20	○	○
	10X	20	○	○
	10X M	20	—	○
	10X EPM	20	○	—
	12.5X	16	○	○
	15X	14	○	○
CFN Filar Micrometer 10X-A		14	○	○

Notes: 1. CFWN 10X M and CFWN 10X EPM types come with a photomask.
2. CFN Filar Micrometer 10X-A comes with a micrometer.

CFWN 10X EPM Photomask

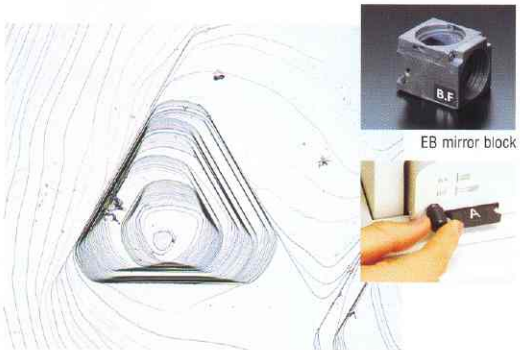


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An Observation Method for All Imaging Modes

Brightfield observation

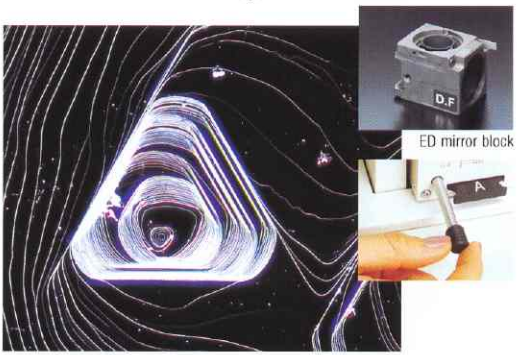
This is the most frequently used observation method and uses differences in reflection to obtain the natural color and shape of a sample.



EB mirror block

Darkfield observation

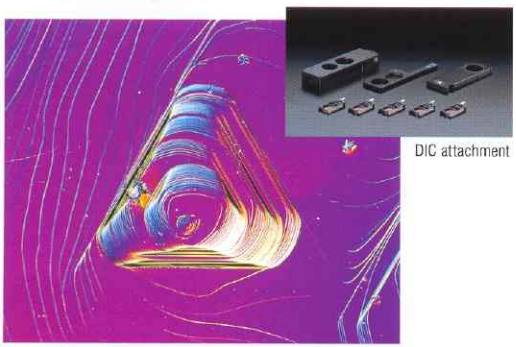
This observation method is significant for observing and photomicrographing minute flaws, surface irregularities, differences in level, or samples with low reflection rates, all difficult to observe under brightfield observation.



ED mirror block

Nomarski DIC observation

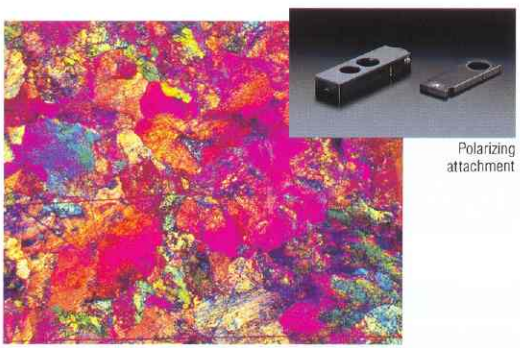
This observation method can capture subtle irregularities and flaws as interference colors and indicate them in three-dimensional forms. Thanks to its ability to represent very small tilt (differential coefficient) with sharp differential contrast, this observation method can detect minute differences in height.



DIC attachment

Simple polarization observation

Used to analyze specific optical characteristics such as isotropy and anisotropy, this observation method permits observation with polarized contrast by way of inteference colors. Ideal for observing crystal conditions and detecting stress such as metal fatigue.



Polarizing attachment

Epi-fluorescence observation

This observation method detects substances on a specimen in the form of fluorescent images and is effective in identifying them.



Fluorescence filter blocks

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The EPIPHOT 200: Comparable Power in a Smaller Package

The well equipped, affordable EPIPHOT 200 has many of the outstanding features of the EPIPHOT 300, in a more compact and upgradable package. It is the instrument of choice for those of you whose primary focus is observation and projecting the results on to a TV monitor.

Photomicrographic capability is but one of the many options available for this versatile instrument.



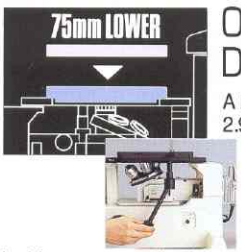
CF Infinity Corrected Optical System

An ideal optical system which combines Nikon's renowned CF Optics with Infinity Corrected design for even greater system flexibility. The result is sharp and clear images you can depend on.



Reticle Imprinting (Option)

Because the reticle is inserted at the primary image plane position, the micrometer maintains fine focus without being affected by the state of the sample surface being observed. Austenite reticles and grids can also be imprinted.



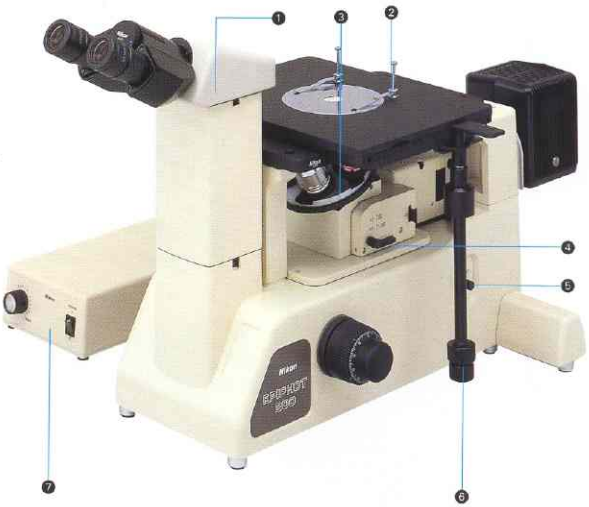
Operator-friendly Design

A lowered stage design (75mm/2.9 in. lower than the previous model) and controls conveniently located within easy reach greatly facilitate overall operation, as does the built-in interlocking aperture diaphragm which automatically adjusts during darkfield/brightfield changeover, and the universal joint stage handle which allows quick movement of the stage by hand from a fixed position.



Stable and Reliable

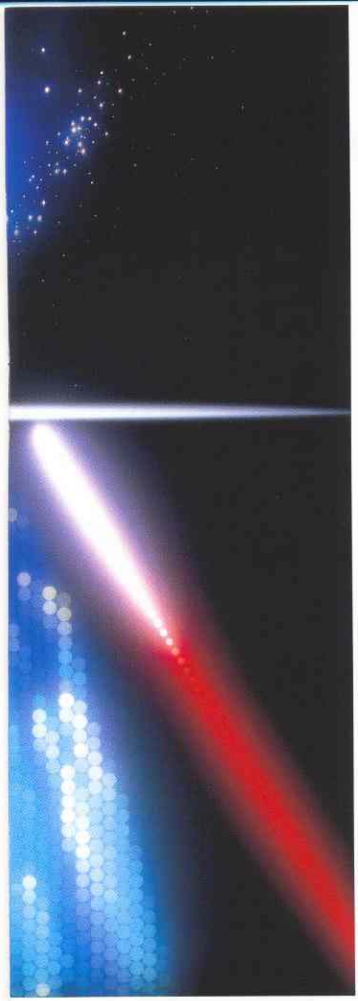
Front and rear support of the stage, a low profile design, and a nosepiece focusing system, all make for a super stable, extremely rugged instrument.





1. Choice of either binocular or trinocular observation tube.
2. Lowered stage (75mm/2.9 in. lower than previous model) with large 70 × 50 mm (2.8 × 2 in.) stroke
3. Revolving nosepiece with vertical movement ensures greater focusing accuracy
4. Brightfield/darkfield changeover lever. The built-in interlocking aperture diaphragm opens when set to darkfield method; returns to the previous state when switched to brightfield method
5. Optical path changeover lever
6. Universal-joint stage handle for fixed position stage adjustment
7. Stabilized external power supply with light intensity control
8. Feather-touch ergo-dial light intensity control
9. Conveniently placed coaxial coarse/fine focusing knob
10. Reticle slot
11. Detachable Photo/CCTV side port. By removing the side port, a C-mount CCTV camera can be directly attached via a C-mount adapter; no relay lens required
12. Filter holder
13. Lamphouse (12V-100W halogen illuminator is pictured)
14. CF objectives

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CF Infinity Corrected Optical System

An ideal optical system which combines Nikon's renowned CF Optics with Infinity Corrected design for even greater system flexibility. The result is sharp and clear images you can depend on.



2.5X Zoom from 0.8 to 2X

Changes in magnification are simultaneously applied to both observation and photomicrography. The zoom dial click-stops at 1.0, 1.25, 1.5 magnifications, allowing you to change magnifications without removing your eye from the sample.



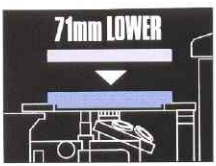
Built-in Photomicrographic System

Permits photomicrography in both the 35mm and 4x5 in. large film formats. 60% integrated average auto exposure photomicrography is possible. Manual exposure, auto bracketing, AE lock (memory of exposure time), and review functions are also featured.



Reticle Imprinting (option)

Because the reticle is inserted at the primary image plane position, the micrometer maintains fine focus without being affected by the state of the sample surface being observed. Austenite reticles and grids can also be imprinted.



Operator-friendly Design



Comfort and ease of operation were prime design considerations. The lowered stage (71mm/2.8 in. lower than the previous model) and the universal-joint stage handle which allows the stage to be moved by hand at a fixed position both contribute to smooth operation. The built-in interlocking aperture diaphragm which automatically adjusts during brightfield/darkfield changeover, and ergonomically located major controls within easy reach also combine to create a comfortable operating environment.



Stable and Reliable

Front and rear support of the stage, a low profile design, and a nosepiece focusing system, all make for a super stable, extremely rugged instrument.



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The Versatile EPIPHOT 300U Inverted Metallurgical Microscope: The Rock Solid Answer to Your Research Needs

A model of technological integration, Nikon's EPIPHOT 300U combines the superb CF Infinity Corrected Optical System, with a matchless degree of operator comfort, and rock solid stability. Add to this a full range of photomicrographic capabilities, as well as scale imprinting, and you have a cutting edge instrument providing the highest possible optical performance.

We think you will agree that the EPIPHOT 300U is more than the sum of its excellent parts.



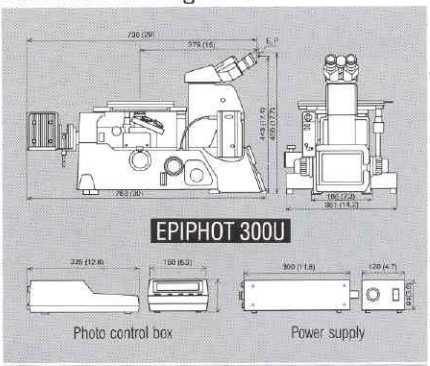
1. Reticle anti-rotation mechanism keeps the reticle at a fixed position
2. Dedicated eyepiece tube
3. Lowered stage (71mm/2.8 in. lower than previous model) with large 70 x 50 mm (2.8 x 2 in.) stroke
4. Revolving nosepiece with vertical movement ensures greater focusing accuracy
5. Brightfield/darkfield changeover lever. The built-in interlocking aperture diaphragm opens when set to darkfield method; returns to the previous state when switched to brightfield method
6. Optical path changeover lever
7. Light path control lever
8. Universal-joint stage handle for fixed position stage movement
9. Built-in photomicrographic system for 35mm or 4 x 5 in. large format film photomicrography
10. Photo control box
11. Stabilized external power supply
12. Feather-touch ergo-dial light intensity control
13. Conveniently placed coaxial coarse/fine focusing knob
14. Reticle slot
15. Detachable Photo/CCTV side port. By removing the side port, a C-mount CCTV camera can be directly attached via a C-mount adapter; no relay lens required
16. Filter holder
17. Lamphouse (12V-100W halogen illuminator is pictured)
18. CF objectives

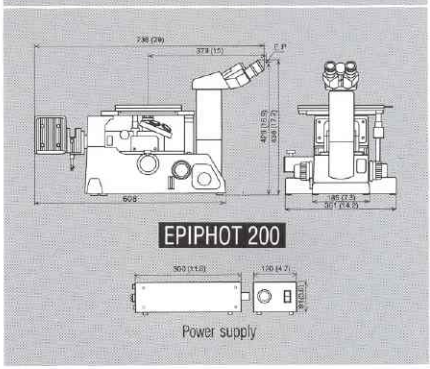
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Specifications

Model	EPIPHOT 300U	EPIPHOT 200
Appearance	Box type	
Eyepiece tube	Fixed binocular eyepiece tube Rotation of eyepiece reticle is compensated	4 types detachable: B2, F2, UW2, T2 (see page 9 for more details)
Eyepieces	CFWN8X, 10X, 10XEPM, 12.5X, 15X, CFN Filer Micrometer 10X-A	CFUWL10X, 10XM, CFWN8X, 10X, 10XEPM, CFN Filer Micrometer 10X-A
Light distribution	4-way (observation/side port/ 35mm/large format) Obs. 100, Obs./side port 20/80, Obs./35mm 20/80, Obs./large format 20/80	2-way (observation/side port) Obs. 100, Obs./side port 20/80 (Straight tube usable with a trinocular eyepiece tube)
Intermediate magnification	0.8–2X zooming (stops with a click at 1.0X, 1.25X, 1.5X)	—
Scale imprinting Position Type	Inserting at primary image plane Micrometer scale, Grain reticle (Austenite reticles No. 1–8 and Grid)	
Epi-illuminator Light source Filter Field diaphragm Aperture diaphragm	Built-in centerable field and aperture diaphragms 12V-100W halogen (precentered/standard), 12V-50W halogen (option), 100W Hg (option), 100W Xe (option), 150W Metal Halide (option) 12V-100W halogen illuminator: three ø45mm filters attachable (NCB11, ND2/ND4, ND8, GIF), 12V-50W halogen illuminator: two ø25mm filters attachable (NCB11, ND2, ND4, GIF), Mercury/xenon high intensity illuminator: three ø45mm filters attachable (NCB11, ND2/ND4, ND8, GIF), Built-in glare-protection filter (ND8) (works during changeover between brightfield and darkfield) Centering can be provided (adjusts itself during brightfield/darkfield changeover) Centering can be provided	
Focusing system Stroke Coarse Fine Minimum reading	Nosepiece focusing 4mm (3mm upward, 1mm downward) 4mm/rotation 0.1mm/rotation 1µm coarse motion torque adjustable	
Nosepiece	1) Universal Quintuple Nosepiece 2) BD Quintuple Nosepiece 3) Epi Quintuple Nosepiece	
Objectives	See page 6 for details	
Stage Stage attachment Stage height	Both-end supported; detachable 299mm (11.8 in.) 1) Rectangular stage with universal joint and low positioned coaxial control knob, Cross-travel range: 70 x 50 mm (2.8 x 2.0 in.) 2) Plain stage (available as option)	 295mm (11.6 in.)
Photomicrography Measuring area Light detector Magnification Function	60% integrated average SPD 2–5X (35mm), 8–20X (large format) Manual exposure; Auto bracketing; AE lock (memory of exposure time); Review function	(Photomicrographic System FX-III Series available as option)
Side port	ø38mm straight port + photo port; accommodates photomicrographic/CCTV systems	
Dimensions (W x D x H) and weight (approx.)	361 x 763 x 450 mm (14.2 x 30.0 x 17.7 in.); 39kg (86 lbs.)	361 x 736 x 436 mm (14.2 x 29.0 x 17.2 in.); 31kg (68 lbs.)
Power supply unit	PSM-1120: 100–120VAC, 3A, 50/60 Hz PSM-2120: 220–240VAC, 2A, 50/60 Hz	

Dimensional Diagrams





Unit: mm (inch)

Specifications and equipment are subject to change without any notice or obligation on the part of the manufacturer. June 1999.

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Yokohama Plant

WARNING TO ENSURE CORRECT USAGE, READ THE CORRESPONDING MANUALS CAREFULLY BEFORE USE.

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NIKON CORPORATION
9-16, Ohi 3-chome, Shinagawa-ku, Tokyo 140-8505, Japan
Tel: +81-3-3773-8122 Telex: 22601 (NIKON J) Telefax: +81-3-3773-8115
http://www.nikon.com/
http://www.nikon.co.jp/inst/

NIKON EUROPE B.V.
P.O. Box 222, 1170 AE Badhoevedorp, The Netherlands
Tel: +31-20-44-96-222 Telex: 13328 (NIKON NL) Telefax: +31-20-44-96-298

NIKON INC.
Science and Technologies Group
Instruments Division
1300 Walt Whitman Road, Melville, N.Y. 11747-3064, U.S.A.
Tel: +1-516-547-8500 Telefax: +1-516-547-0306

NIKON CANADA INC.
CANADA Tel: +1-905-625-9910 Telefax: +1-905-625-0103

NIKON FRANCE S.A.
FRANCE Tel: +33-1-45-16-45-16 Telefax: +33-1-45-16-00-33

NIKON GmbH
GERMANY Tel: +49-211-9414-0 Telefax: +49-211-9414-322

NIKON INSTRUMENTS S.p.A.
ITALY Tel: + 39-55-3009601 Telefax: + 39-55-300993

NIKON SINGAPORE PTE. LTD.
SINGAPORE Tel: +65-2978123 Telefax: +65-2978131

NIKON AG
SWITZERLAND Tel: +41-1-913-61-11 Telefax: +41-1-913-63-63

NIKON UK LTD.
UNITED KINGDOM Tel: +44-181-541-4440 Telefax: +44-181-541-4584

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