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SEIWA OPTICAL



Objective Lens for Microscopes

Plano Apochromatic designs with excellent contrast and resolution performance. Models available for UV, Visible, and NIR imaging out to 2000nm. Applications include laser marking /cutting, inspection and photo emission applications. LCD and silicon substrate thickness corrected versions available.

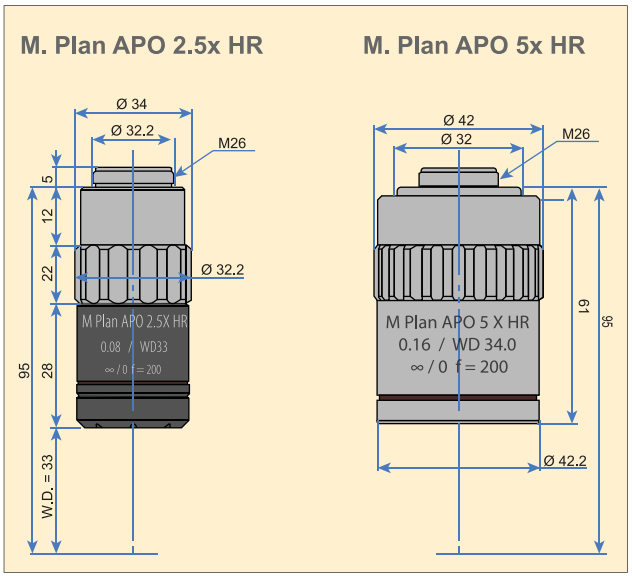


M.Plan APO HR Series

Introducing a larger field of view for microscope systems with a 25M pixel camera, image circle of 33mm and long working distances. These Apochromatic and Infinity corrected design objective lens, and special video tube system provides a bright-field illumination with high uniformity over field of view.







Specifications

Model	M.Plan APO 1.5 X HR	M.Plan APO 2.5X HR	M.Plan APO 5X HR
Image Circle	33mm	33mm	33mm
Magnification	1.5 X	2.5 X	5X
Working Distance	25mm	33mm	34mm
Focal Distance	133.38mm	80mm	40mm
NA	0.048	0.08	0.16
Resolution	7.4μm	4.2μm	2.1μm
Focal Depth	119.3μm	42.9 μm	10.7μm
Wavelength	450nm - 680nm	450nm - 680nm	450nm - 680nm

Motorized turret and laser auto focus system also available as options.

MS - 200 -TCD33

This video tube system is designed for use with the M.Plan APO HR series lens and for larger sensor formats up to an 33mm image circle. This can also be used with typical 25M pixel full view.





Specifications

Tube Lens	f = 200mm
Image Circle	33mm
Illumination	Co-axial illumination (Incline illumination)

PE-IR Plan Objectives

High N.A. and Long Working Distance Objective Lens

- No focal shift between 800nm and 1600nm
- High transmission, long working distance
- Available in 1X, 2.5X, 10X, 20X, 50X, and 100X
- LCD and Silicon corrected versions are available

Application includes

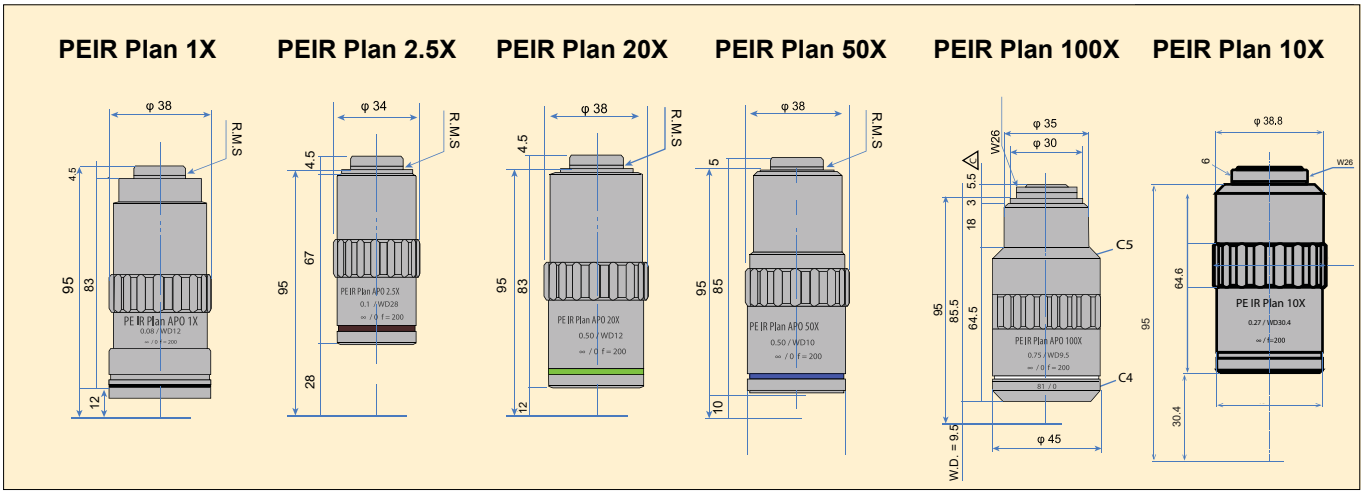
- Wafer Backside Inspection
- Photo Emission Detection
- Laser Repair
- Laser Glass Cutting
- Laser Scan Microscopy
- CARS Microscopy



Specifications

Model	PEIR Plan1X	PEIR Plan 2.5	PEIR Plan 10X	PEIR Plan 20X	PEIR Plan 50X	PEIR Plan 100X
Magnification	1.0X	2.5X	10X	20X	50X	100X
Working Distance	12mm	28.0mm	30.7mm	12mm	10mm	9.5mm
Focal Distance	200mm	80mm	20mm	10mm	4mm	2mm
NA	0.03	0.1	0.27	0.5	0.6	0.71
Resolution	22.4 μm	6.7 μm	2.5 μm	1.3 μm	1.1 μm	0.9 μm
Focal Depth	611 μm	55 μm	7.5 μm	2.2 μm	1.5 μm	0.9 μm
Wavelength	800 - 1600nm	450 - 1600nm	550 - 1600nm	800 - 1600nm	900 - 1600nm	900 - 1400nm

*the resolution is calculated as a theoretical resolution based on NA of wavelength 1100nm



PEIR 2000 HR Series

Seiwa PE IR 2000HR Series lens are color corrected from 1000nm-2000nm wavelength.

It's high resolution and high throughput design enables collection of weak signals from samples without re-focusing.

In addition, this lens is able to correct 0-700 micron thickness of silicon and glass.

Both 20X (NA:0.6) and 50X (NA:0.7) are available.

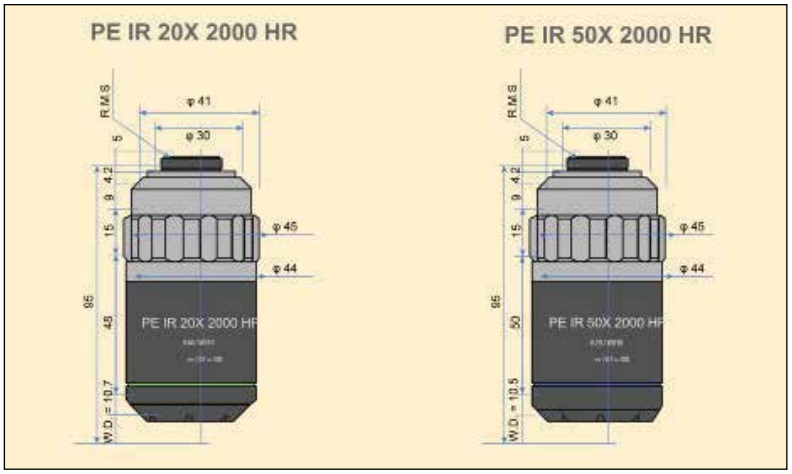


Specifications

Model	PE IR 20X 2000 HR	PE IR 50X 2000 HR
Resolution *1	1.6 µm	1.4 µm
Working Distance *2	10	10
N.A	0.6	0.7-
Transmission Rate*3	1300nm > 80% 2000nm > 80%	300nm > 80% 2000nm > 80 %
Focal Shift *3	Less than ±1.3µm (1300 - 2000µm)	Less than ±1.3µm (1300 -2000µm)
Chromatic Aberration*3 **Standard Wavelenght 1550nm**	1300µm - 2.43µm 2000µm - 12.26µm	1300µm - 2.20µm 2000µm - 12.19µm
Silicon Correcting *4	<700µm	<700µm
Parfocal Distance	95mm	95mm

*1 The resolution is calculated as a theoretical based on NA of wavelength 1550 nm
*3 Transmission rate, Focal Shift and Chromatic aberration are provisional values. Standard wavelength is 1550nm.

*2 The working distance of PEIR 50x 2000HR is a provisional value.
*4 Compensating glass is needed for silicon correction. (Optional)





M Plan APO Objectives

Long working distance objective lens for Visible Application



Specifications for M26 Thread Version

Model	M Plan APO 2.5X HR	M Plan APO 5X SBS	M Plan APO 10X S	M Plan APO 20X S	M Plan APO 50XSBS	M Plan APO 100XSBS
Magnification	2.5X	5X	10x	20X	50X	100X
Working Distance	33mm	36.1mm	38.9mm	20.0mm	18.3mm	14.1mm
Focal Distance	80.0mm	40mm	20mm	10mm	4mm	2mm
NA	0.08	0.16	0.23	0.4	0.40	0.52
Resolution	4.2μm	2.1μm	1.5μm	0.9μm	0.8μm	0.6μm
Depth of Field	42.9μm	10.7μm	5.2μm	1.7μm	1.7μm	1.0μm
Eyepiece (FOV)	8.8	4.4	2.2	1.1	0.44	0.22
		*Adapter Ring			*Adapter Ring	*Adapter Ring

Specifications for RMS Thread Version (M26 thread adapter is available)

Model	~~M Plan APO 2.5X~~	M Plan APO 5X SBS	M Plan APO 10X SBS	M Plan APO 20X SBS	M Plan APO 50X SBS	M Plan APO 100X SBS
Magnification	2.5X	5X	10x	20X	50X	100X
Working Distance	32.5mm	36.1mm	38.9mm	20.0mm	18.3mm	14.1mm
Focal Distance	80.0mm	40mm	20mm	10mm	4mm	2mm
NA	0.06	0.16	0.23	0.40	0.40	0.52
Resolution	5.6μm	2.1μm	1.5μm	0.9μm	0.9μm	0.6μm
Depth of Field	76.4μm	10.7μm	5.2μm	1.7μm	1.7μm	1.0μm
Eyepiece (FOV)	8.8	4.4	2.2	1.1	0.44	0.22
	*Discontinue					

*The resolution is calculated as a theoretical resolution based on NA wavelength 550 nm

NUV Plan APO

These objective lens extends that range of the M Plan APO objectives into UV and have a super long working distance. The focal plane is corrected for both Bright Field and Near UV (355nm), meaning that both wavelengths will be in focus.



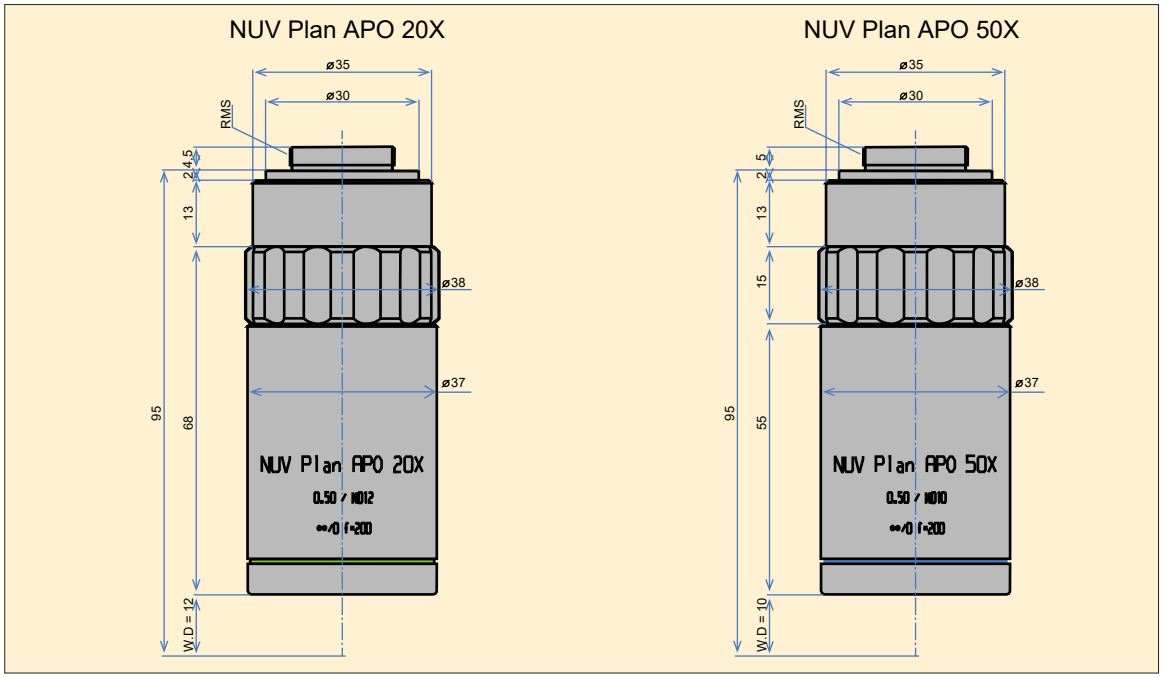
Features:

- Long working distance.
- Color corrected from 355nm to 656nm.
- Designed for high spectrum transmitting rates at near UV
- Available for fine cutting with YAG laser (wavelength 355nm/532nm) for pattern correction on thin display, or semiconductor wafer.

Specifications

Model	NUV PlanAPO 20X	NUV PlanAPO 50X
Magnification	20X	50X
Working Distance	12mm	10mm
Focal Distance	10mm	4mm
N.A	0.5	0.5
Focal Depth	1.1 μm	1.1 μm
Resolution	0.6 μm	0.6 μm
Correction Glass	Optional	Optional

*Note: Resolution and depth is calculated using the wavelength of (x=0.55μm)



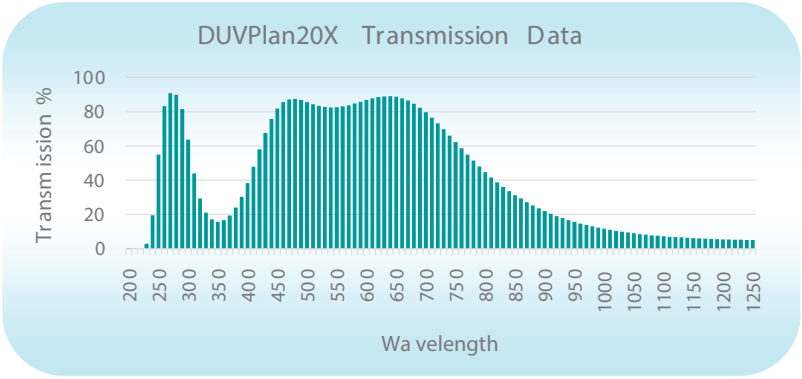
DUV Plan

The DUV is an extension of the UV Plan APO objectives lens series. The lens are able to extend high transmissions down to 266nm. They are optimized for Optimized for bright-field illumination and f=200mm tube lenses.

Features:

- Long working distance.
- Color corrected at UV light (266nm) and at visible light (550nm).
- Available for fine cutting with YAG laser (wavelength 532nm/266nm) for pattern correction on thin display, or semiconductor.





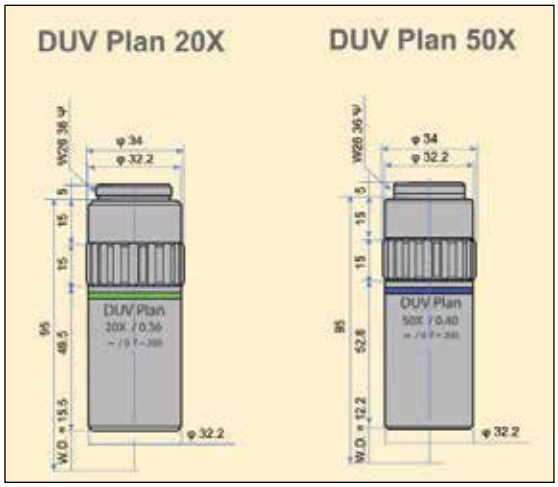
Specifications

Model	DUVPlan 20X	DUVPlan 50X
Magnification	20X	50X
Working Distance	15.5mm	12.2mm
Focal Distance (f)	10mm	4mm
N.A	0.36	0.40
Resolution	0.93μm	0.84μm
Focal Depth(±D.F)	2.1μm	1.7μm
Weight	360g	320g

*Resolution and focal depth of objective lens is calculated using the wavelength (λ=0.55 μm)

*Resolution = 0.61x0.55/N.A

*Resolution = 0.61x0.55/N.A



Your CORRECT Solution for Industrial Vision



Compact Telecentric Lenses

Long working distance compact design provides flexible solution for image processing systems.
In-line illumination port allows uniform coaxial illumination over entire FOV. Lockable ring on C-mount allows full adjustment of camera orientation. Available in a range of magnifications and working distance.



LWD Objective Lenses

Piano Apochromatic designs with excellent contrast and resolution performance. Models available for UV, Visible, and NIR imaging out to 2µm. Applications include laser marking/cutting, inspection and photo emission applications. LCD and silicon substrate thickness corrected versions available.



Industrial Microscopes

High-resolution microscope systems ideal for inspection, semiconductor probe stations, and LCD assembly applications.

About SEIWA Optical

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