SIMTRUM

Objective Lens Series

2023 V1

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info@simtrum.com

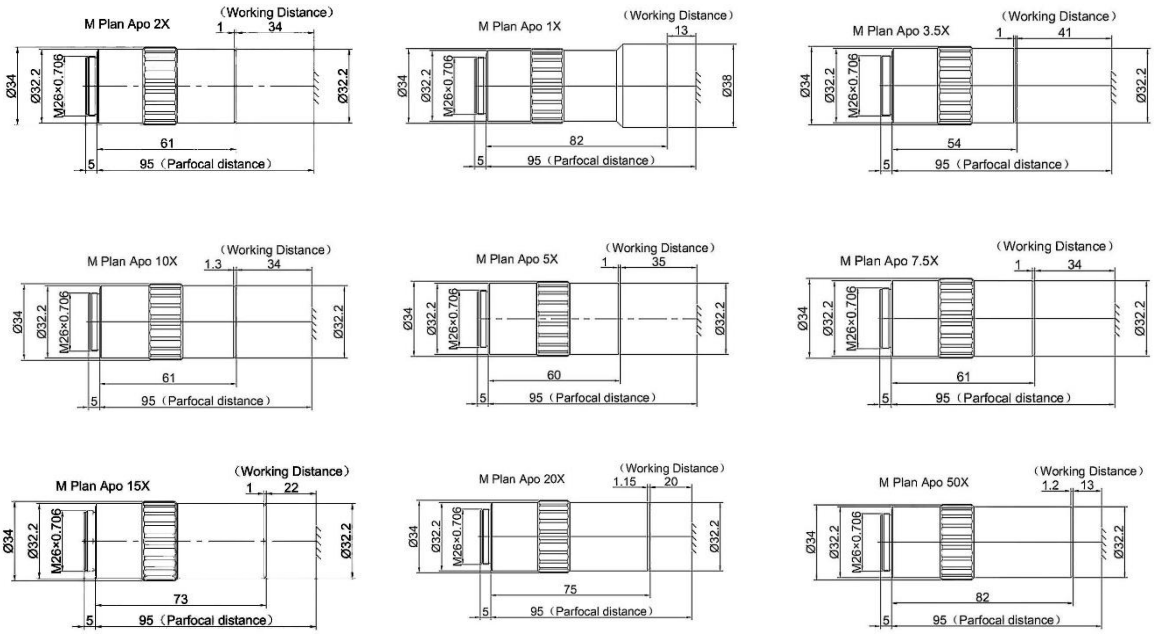
M Plan Apo

M Plan Apo is long working distance objective with an infinite conjugate parfocal distance of 95mm.It can be used for coaxial observation and convergence of visible light, with correction of chromatic aberration within 400~700nm of visible spectrum.

Feature

- A long working distance objective with an infinite conjugate parfocal distance of 95mm
- Correction of chromatic aberration within 400~700nm of visible spectrum
- Full field curvature correction，sharp edge imaging
- It can be used for coaxial observation and convergence of visible light

Drawing



Specification

Name	NA	WD(mm)	F(mm)	R(um)	±D.F(um)	Angular Field of View		Weight(g)
						Φ24 Eyepiece	1"Camera	
M Plan Apo 1X	0.025	13	200	11	440	24	9.6×12.8	240
M Plan Apo 2X	0.055	34	100	5	91	12	4.8×6.4	206
M Plan Apo 3.5X	0.1	41	57.14	2.8	28	6.9	2.7×3.6	218
M Plan Apo 5X	0.14	35	40	2	14	4.8	1.92×2.56	212
M Plan Apo 7.5X	0.21	34	26.67	1.3	6.2	3.6	1.28×1.7	247
M Plan Apo 10X	0.28	34	20	1	3.5	2.4	0.96×1.28	217
M Plan Apo 15X	0.35	22	13.33	0.8	2.2	1.8	0.64×0.85	240
M Plan Apo 20X	0.42	20	10	0.7	1.6	1.2	0.48×0.64	271
M Plan Apo 50X	0.55	13	4	0.5	0.9	0.48	0.19×0.26	298

Note:The resolution and depth of focus of the objective are calculated from the reference wavelength（λ=550nm）

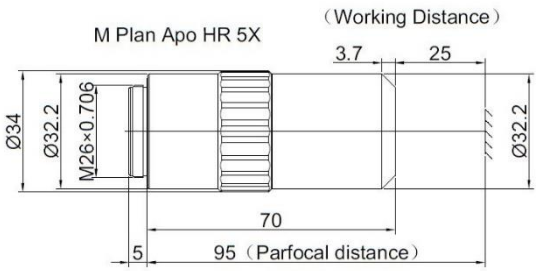
M Plan Apo HR

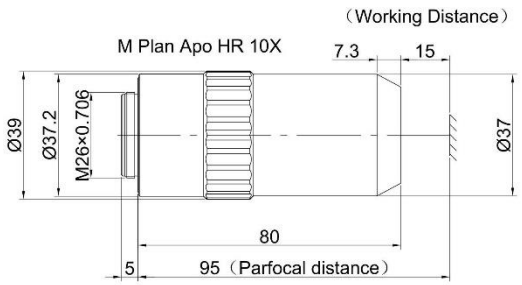
M Plan Apo HR is ultra-high resolution objective with an infinite conjugate parfocal distance of 95mm.It can be used for coaxial observation and convergence of visible light, with correction of chromatic aberration within 400~700nm of visible spectrum.

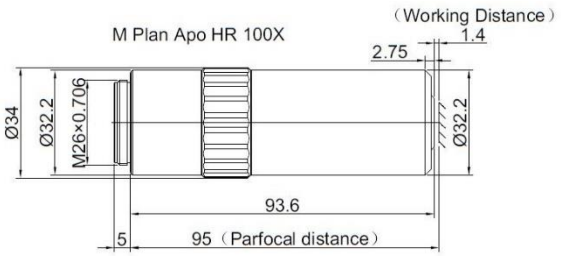
Feature

- Ultra-high resolution objective lens with an infinite conjugate parfocal distance of 95mm
- Correction of chromatic aberration within 400~700nm of visible spectrum
- Full field curvature correction，sharp edge imaging
- It can be used for coaxial observation and convergence of visible light

Drawing







Specification

Name	NA	WD(mm)	F(mm)	R(um)	±D.F(um)	Angular Field of View		Weight(g)
						Φ24 Eyepiece	1"Camera	
M Plan Apo HR 5X	0.21	25	40	1.3	6.2	4.8	1.92×2.56	251
M Plan Apo HR 10X	0.42	15	20	0.7	1.6	2.4	0.96×1.28	382
M Plan Apo HR 20X	0.6	9.5	10	0.5	0.76	1.2	0.48×0.64	563
M Plan Apo HR 100X	0.9	14	2	0.3	0.34	0.24	0.1×0.13	362

Note:The resolution and depth of focus of the objective are calculated from the reference wavelength（λ=550nm）

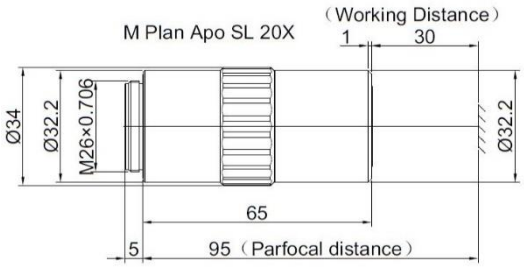
M Plan Apo SL

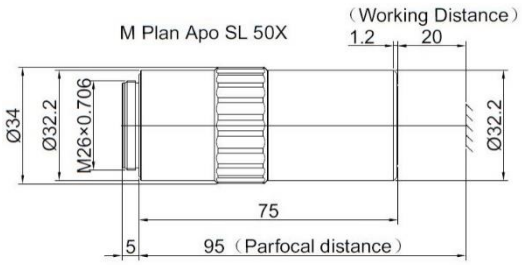
M Plan Apo SL is ultra-long working distance objective with an infinite conjugate parfocal distance of 95mm.It can be used for coaxial observation and convergence of visible light, with correction of chromatic aberration within 400~700nm of visible spectrum.

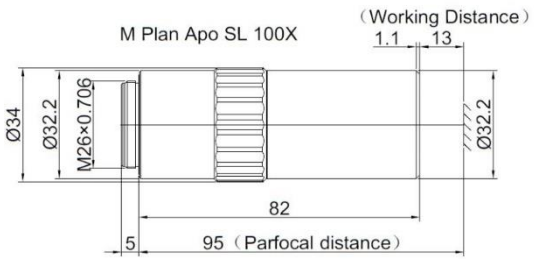
Feature

- Ultra-long working distance objective with an infinite conjugate parfocal distance of 95mm
- Correction of chromatic aberration within 400~700nm of visible spectrum
- Full field curvature correction，sharp edge imaging
- It can be used for coaxial observation and convergence of visible light

Drawing







Specification

Name	NA	WD(mm)	F(mm)	R(um)	±D.F(um)	Angular Field of View		Weight(g)
						Φ24 Eyepiece	1"Camera	
M Plan Apo SL 20X	0.29	30	10	0.9	3.3	1.2	0.48×0.64	236
M Plan Apo SL 50X	0.42	20	4	0.7	1.6	0.48	0.19×0.26	286
M Plan Apo SL 100X	0.55	13	2	0.5	0.9	0.24	0.1×0.13	302

Note:The resolution and depth of focus of the objective are calculated from the reference wavelength（λ=550nm）

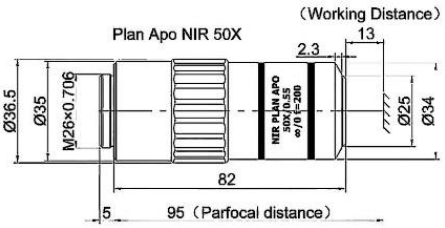
M Plan Apo NIR/
M Plan Apo NIR HR

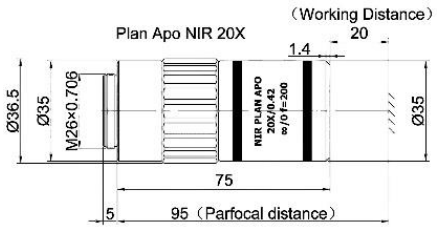
M Plan Apo NIR / M Plan Apo NIR HR are long working distance objectives with an infinite conjugate parfocal distance of 95mm.These objectives can be used for 532nm, 1030~1064nm laser processing.

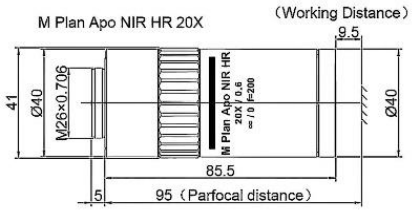
Feature

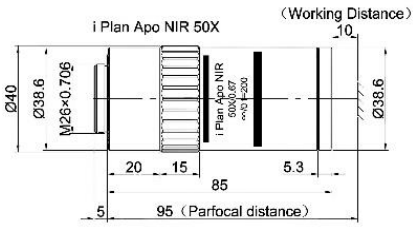
- A long working distance objective with an infinite conjugate parfocal distance of 95mm
- Corrected the chromatic aberration of the visible spectrum, and the processing surface can be observed coaxially with the laser beam
- Can be used for 532nm, 1030~1064nm laser processing
- HR-type objective lens is attached with 1.8mm-thick replaceable protective glass

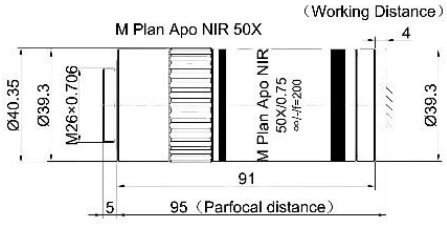
Drawing











Specification

Name	NA	WD(mm)	F(mm)	R(um)	±D.F(um)	Angular Field of View		Weight(g)
						Φ24 Eyepiece	1"Camera	
M Plan Apo NIR 20X	0.42	20	10	0.65	1.56	1.2	0.48×0.64	377
M Plan Apo NIR 50X	0.55	13	4	0.5	0.91	0.48	0.19×0.26	394
M Plan Apo HR NIR 20X	0.6	9.5	10	0.46	0.76	1.2	0.48×0.64	563
i Plan Apo HR NIR 50X	0.67	10	4	0.41	0.61	0.48	0.19×0.26	470
M Plan Apo HR NIR 50X	0.75	4	4	0.37	0.49	0.48	0.19×0.26	582

Note:The resolution and depth of focus of the objective are calculated from the reference wavelength（λ=550nm）

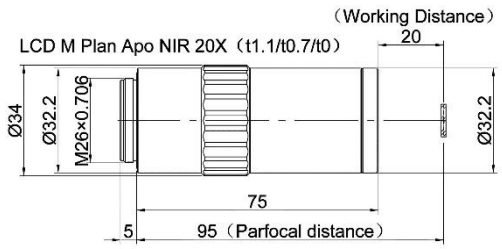
LCD Plan Apo NIR

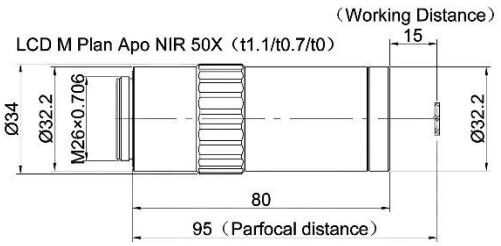
LCD Plan Apo NIR is long working distance objective with an infinite conjugate parfocal distance of 95mm. The thickness of the corresponding cover glass is t=0, t=0.7, t=1.1, which can be achieved by replacing the corresponding protective lens holder. This objective can be used for 532nm，1030~1064nm laser processing.

Feature

- A long working distance objective with an infinite conjugate parfocal distance of 95mm
- Chromatic aberration of the visible spectrum is corrected, and the processing surface can be observed coaxially with the laser beam
- Can be used for 532nm，1030~1064nm laser processing
- The thickness of the corresponding cover glass is t=0, t=0.7, t=1.1, which can be achieved by replacing the corresponding protective lens holder

Drawing





Specification

Name	NA	WD(mm)	F(mm)	R(um)	±D.F(um)	Angular Field of View		Weight(g)
						Φ24 Eyepiece	1"Camera	
LCD Plan Apo NIR 20X(t0)	0.4	20	10	0.7	1.7	1.2	0.48×0.64	260
LCD Plan Apo NIR 20X(t0.7)	0.4	20	10	0.7	1.7	1.2	0.48×0.64	259
LCD Plan Apo NIR 20X(t1.1)	0.4	20	10	0.7	1.7	1.2	0.48×0.64	258
LCD Plan Apo NIR 50X(t0)	0.45	15	4	0.6	1.4	0.48	0.19×0.26	300
LCD Plan Apo NIR 50X(t0.7)	0.45	15	4	0.6	1.4	0.48	0.19×0.26	299
LCD Plan Apo NIR 50X(t1.1)	0.45	15	4	0.6	1.4	0.48	0.19×0.26	298

Note:The resolution and depth of focus of the objective are calculated from the reference wavelength（λ=550nm）

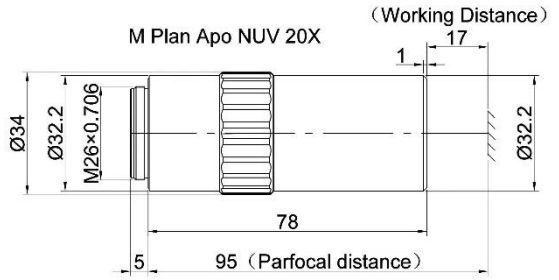
M Plan Apo NUV/
M Plan Apo NUV HR

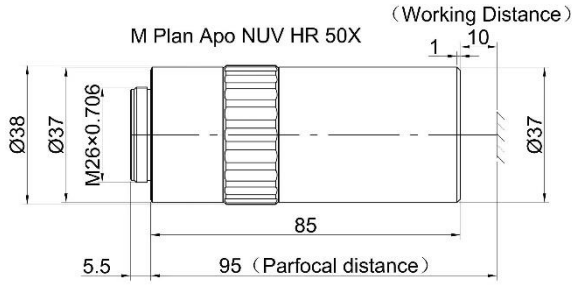
M Plan Apo NUV / M Plan Apo NUV HR are long working distance objective with an infinite conjugate parfocal distance of 95mm.It can be used for 355nm, 532nm laser processing.

Feature

- A long working distance objective with an infinite conjugate parfocal distance of 95mm
- Chromatic aberration of the visible spectrum is corrected, and the processing surface can be observed coaxially with the laser beam
- Can be used for 355nm, 532nm laser processing
- Good imaging performance at 365nm and 405nm

Drawing





Specification

Name	NA	WD(mm)	F(mm)	R(um)	±D.F(um)	Angular Field of View		Weight(g)
						Φ24 Eyepiece	1"Camera	
M Plan Apo NUV 20X	0.42	17	10	0.65	1.56	1.2	0.48×0.64	268
M Plan Apo HR NUV 50X	0.65	10	4	0.42	0.65	0.48	0.19×0.26	405

Note:The resolution and depth of focus of the objective are calculated from the reference wavelength（λ=550nm）

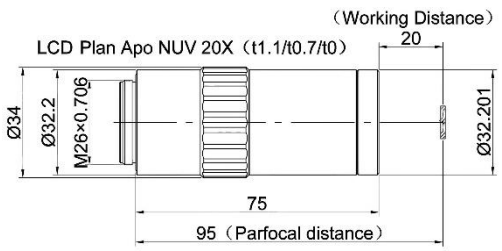
LCD Plan Apo NUV

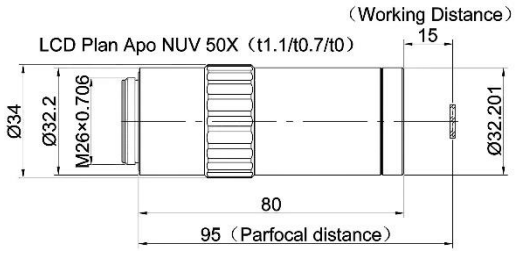
LCD Plan Apo NUV is long working distance objective with an infinite conjugate parfocal distance of 95mm. The thickness of the corresponding cover glass is t=0, t=0.7, t=1.1, which can be achieved by replacing the corresponding protective lens holder.It can be used for 355nm, 532nm laser processing.

Feature

- A long working distance objective with an infinite conjugate parfocal distance of 95mm
- Chromatic aberration of the visible spectrum is corrected, and the processing surface can be observed coaxially with the laser beam
- Can be used for 355nm, 532nm laser processing
- The thickness of the corresponding cover glass is t=0, t=0.7, t=1.1, which can be achieved by replacing the corresponding protective lens holder

Drawing





Specification

Name	NA	WD(mm)	F(mm)	R(um)	±D.F(um)	Angular Field of View		Weight(g)
						Φ24 Eyepiece	1"Camera	
LCD Plan Apo NUV 20X (t0)	0.4	20	10	0.7	1.7	1.2	0.48×0.64	262
LCD Plan Apo NUV 20X (t0.7)	0.4	20	10	0.7	1.7	1.2	0.48×0.64	261
LCD Plan Apo NUV 20X (t1.1)	0.4	20	10	0.7	1.7	1.2	0.48×0.64	260
LCD Plan Apo NUV 50X (t0)	0.45	15	4	0.6	1.4	0.48	0.19×0.26	295
LCD Plan Apo NUV 50X (t0.7)	0.45	15	4	0.6	1.4	0.48	0.19×0.26	294
LCD Plan Apo NUV 50X (t1.1)	0.45	15	4	0.6	1.4	0.48	0.19×0.26	293

Note:The resolution and depth of focus of the objective are calculated from the reference wavelength（λ=550nm）

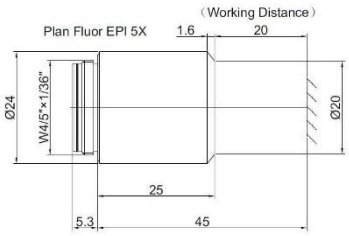
Plan Fluor EPI

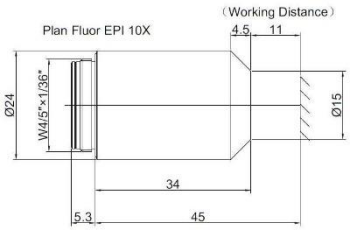
Plan Fluor EPI is bright-field objective for coaxial illumination and for industrial use, with an infinite conjugate parfocal distance of 45mm.It also has plan semi-apochromatic design.

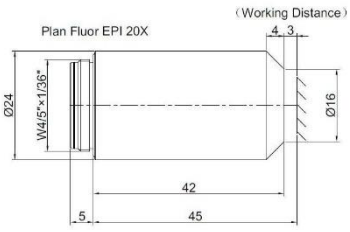
Feature

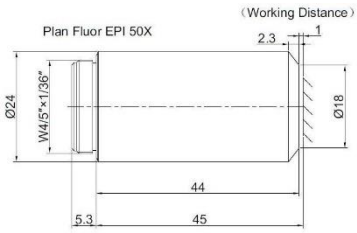
- An industrial objective with an infinite conjugate parfocal distance of 45mm
- Bright-field objective for coaxial illumination
- Plan semi-apochromatic design
- High imaging contrast
- From 5x to 100x, entering pupil position of this series is uniform, which is convenient for DIC observation

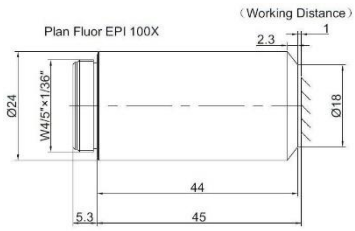
Drawing











Specification

Name	Plan Fluor EPI				
	5X	10X	20X	50X	100X
Optical System Characteristics	Infinite Correction				
Observation Method	Bright Field				
Level of Chromatic Aberration Correction	Semi-apochromatism				
Magnification [X]	5	10	20	50	100
Focal Length [mm]	40	20	10	4	2
Numerical Aperture(NA)	0.15	0.3	0.45	0.8	0.9
Working Distance(WD)[mm]	20	11	3	1	1
Field Number of The Objective [mm]	25				
Resolution [um]	1.8	0.9	0.6	0.34	0.31
Depth of Focus ±D.F [um]	12	3.1	1.4	0.43	0.34
Parfocalizing Distance [mm]	45				
Thread	W4/5"X1/36"				
Weight [g]	57	65	77	89	90

Note:The resolution and depth of focus of the objective are calculated from the reference wavelength（λ=550nm）

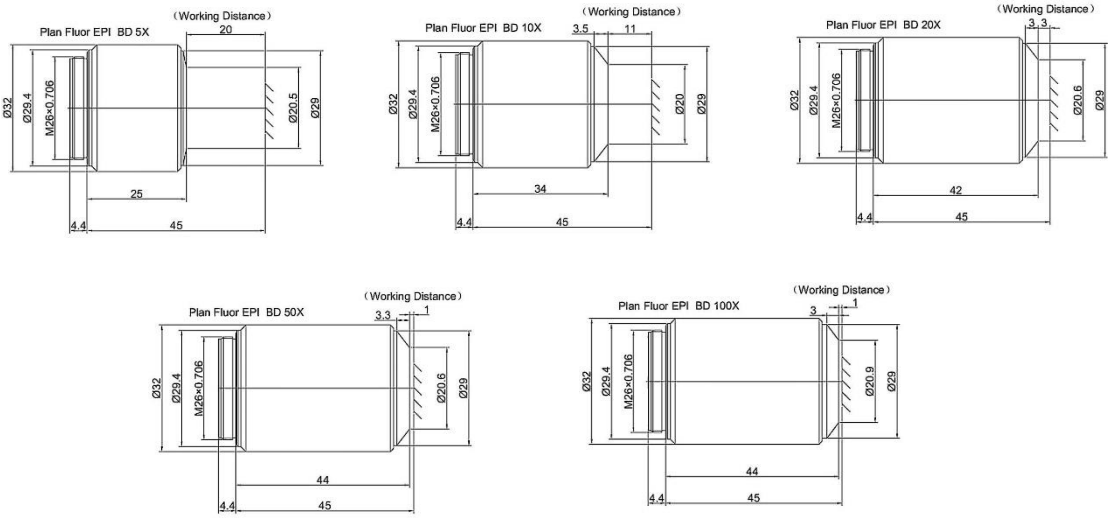
Plan Fluor EPI BD

Plan Fluor EPI BD is BF/DF objective for coaxial illumination and for industrial use, with an infinite conjugate parfocal distance of 45mm.It also has plan semi-apochromatic design.

Feature

- An industrial objective with an infinite conjugate parfocal distance of 45mm
- BF/DF objective for coaxial illumination
- Plan semi-apochromatic design
- High imaging contrast
- From 5x to 100x, entering pupil position of this series is uniform, which is convenient for DIC observation

Drawing



Specification

Name	Plan Fluor EPI BD				
	5X	10X	20X	50X	100X
Optical System Characteristics	Infinite Correction				
Observation Method	Bright Field / Dark Field				
Level of Chromatic Aberration Correction	Semi-apochromatism				
Magnification [X]	5	10	20	50	100
Focal Length [mm]	40	20	10	4	2
Numerical Aperture(NA)	0.15	0.3	0.45	0.8	0.9
Working Distance(WD)[mm]	20	11	3	1	1
Field Number of The Objective [mm]	25				
Resolution [um]	1.8	0.9	0.6	0.34	0.31
Depth of Focus ±D.F [um]	12	3.1	1.4	0.43	0.34
Parfocalizing Distance [mm]	45				
Thread	M26X0.706				
Weight [g]	78	95	111	123	122

Note:The resolution and depth of focus of the objective are calculated from the reference wavelength（λ=550nm）

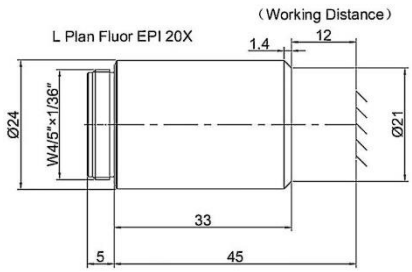
L Plan Fluor EPI

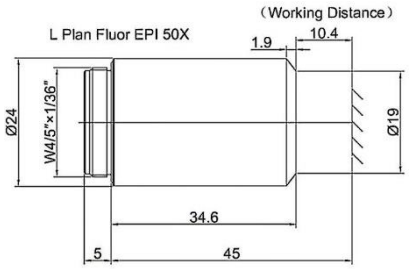
L Plan Fluor EPI is bright-field objective for coaxial illumination and for industrial use, with an infinite conjugate parfocal distance of 45mm.It also has plan semi-apochromatic and Long working distance design.

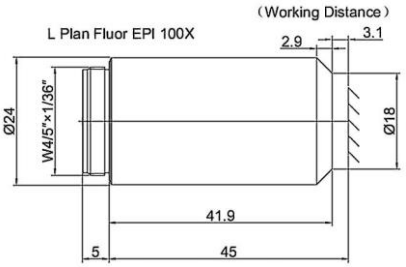
Feature

- An industrial objective with an infinite conjugate parfocal distance of 45mm
- Bright-field objective for coaxial illumination
- Plan semi-apochromatic design
- High imaging contrast
- Long working distance

Drawing







Specification

Name	L Plan Fluor EPI		
	20X	50X	100X
Optical System Characteristics	Infinite Correction		
Observation Method	Bright Field		
Level of Chromatic Aberration Correction	Semi-apochromatism		
Magnification [X]	20	50	100
Focal Length [mm]	10	4	2
Numerical Aperture(NA)	0.4	0.5	0.8
Working Distance(WD)[mm]	12	10.4	3.1
Field Number of The Objective [mm]	25		
Resolution [um]	0.7	0.55	0.34
Depth of Focus ±D.F [um]	1.7	1.1	0.43
Parfocalizing Distance [mm]	45		
Thread	W4/5"X1/36"		
Weight [g]	65	68	88

Note:The resolution and depth of focus of the objective are calculated from the reference wavelength（λ=550nm）

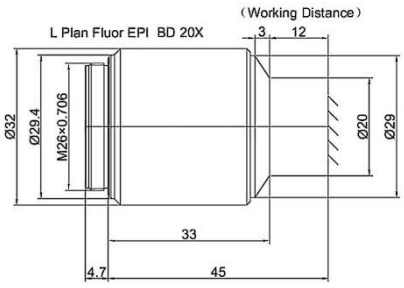
L Plan Fluor EPI BD

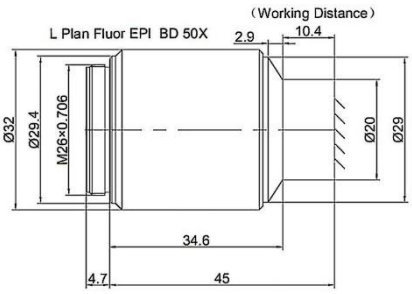
L Plan Fluor EPI BD is BF/DF industrial objective for coaxial illumination, with an infinite conjugate parfocal distance of 45mm.It has plan semi-apochromatic and long working distance design.

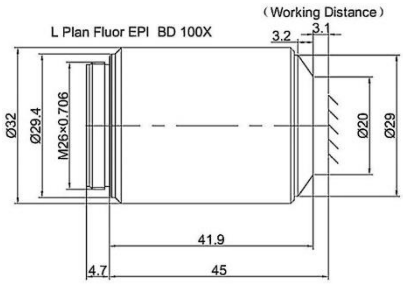
Feature

- An industrial objective with an infinite conjugate parfocal distance of 45mm
- BF/DF objective for coaxial illumination
- Plan semi-apochromatic design
- High imaging contrast
- Long working distance

Drawing







Specification

Name	L Plan Fluor EPI BD		
	20X	50X	100X
Optical System Characteristics	Infinite Correction		
Observation Method	Bright Field / Dark Field		
Level of Chromatic Aberration Correction	Semi-apochromatism		
Magnification [X]	20	50	100
Focal Length [mm]	10	4	2
Numerical Aperture(NA)	0.4	0.5	0.8
Working Distance(WD)[mm]	12	10.4	3.1
Field Number of The Objective [mm]	25		
Resolution [um]	0.7	0.55	0.34
Depth of Focus ±D.F [um]	1.7	1.1	0.43
Parfocalizing Distance [mm]	45		
Thread	M26X0.706		
Weight [g]	96	100	118

Note:The resolution and depth of focus of the objective are calculated from the reference wavelength（λ=550nm）

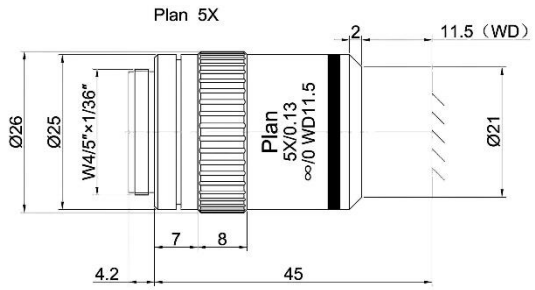
Plan

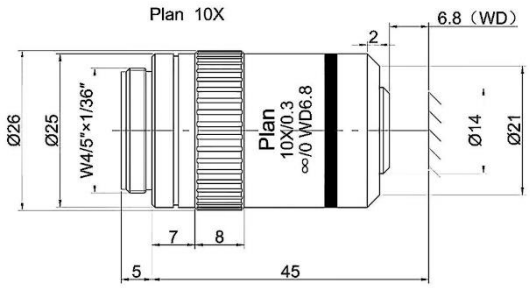
Plan is industrial objective with an infinite conjugate parfocal distance of 45mm.It is designed for bright field applications , with flat-field achromatic correction to provide excellent image flatness across the entire field of view.

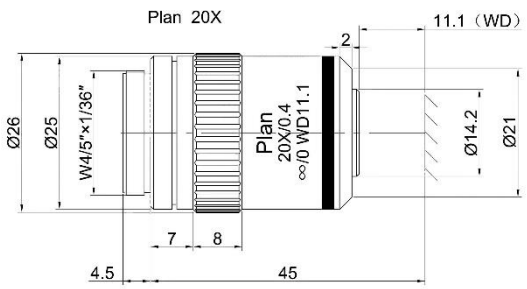
Feature

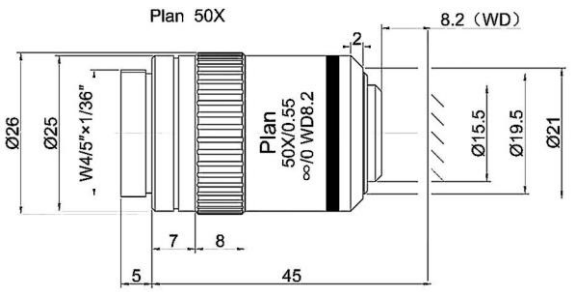
- An industrial objective with an infinite conjugate parfocal distance of 45mm
- Designed for bright field applications
- Flat-field achromatic correction to provide excellent image flatness across the entire field of view

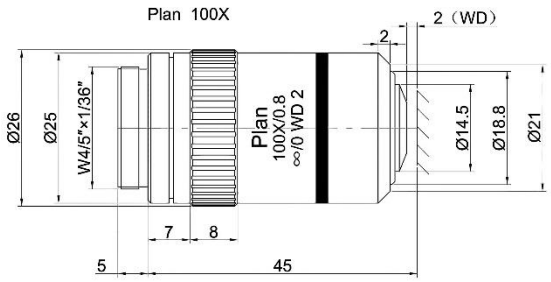
Drawing











Specification

Name	Plan				
	5X	10X	20X	50X	100X
Optical System Characteristics	Infinite Correction				
Observation Method	Bright Field				
Level of Chromatic Aberration Correction	Achromatism				
Magnification [X]	5	10	20	50	100
Focal Length [mm]	40	20	10	4	2
Numerical Aperture(NA)	0.13	0.3	0.4	0.55	0.8
Working Distance(WD)[mm]	11.5	6.8	11.1	8.2	2
Field Number of The Objective [mm]	25				
Resolution [um]	2.1	0.9	0.7	0.5	0.34
Depth of Focus ±D.F [um]	16.3	3.1	1.7	0.9	0.43
Parfocalizing Distance [mm]	45				
Thread	W4/5"X1/36"				
Weight [g]	103	105	98	98	119

Note:The resolution and depth of focus of the objective are calculated from the reference wavelength（λ=550nm）

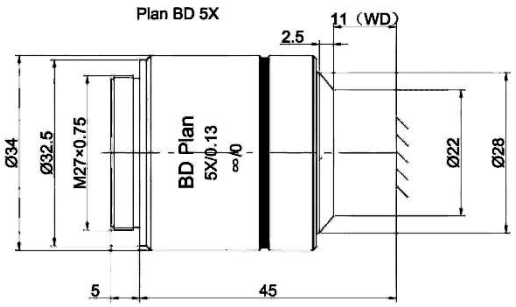
Plan BD

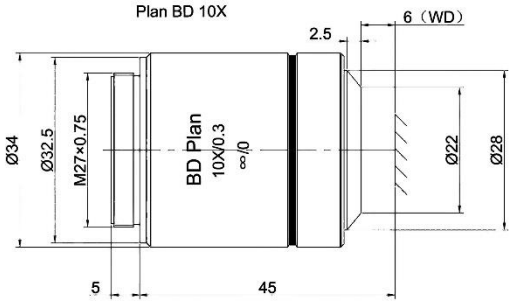
Plan BD is industrial objective with an infinite conjugate parfocal distance of 45mm, designed for bright&dark field applications.

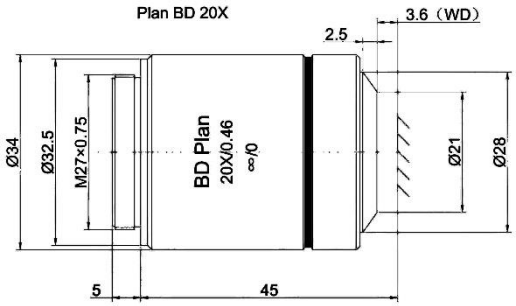
Feature

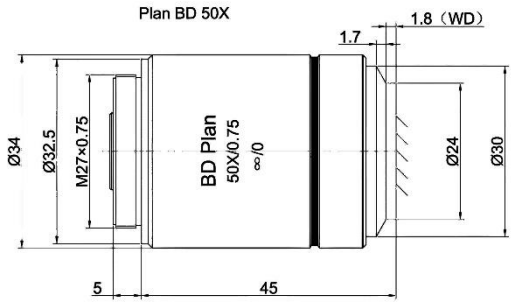
- An industrial objective with an infinite conjugate parfocal distance of 45mm
- Designed for bright&dark field applications
- Flat-field achromatic correction to provide excellent image flatness across the entire field of view

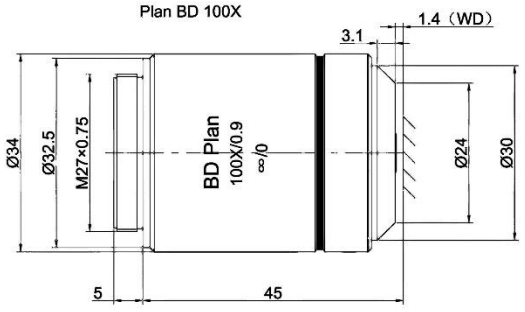
Drawing











Specification

Name	Plan BD				
	5X	10X	20X	50X	100X
Optical System Characteristics	Infinite Correction				
Observation Method	Bright Field / Dark Field				
Level of Chromatic Aberration Correction	Achromatism				
Magnification [X]	5	10	20	50	100
Focal Length [mm]	40	20	10	4	2
Numerical Aperture(NA)	0.13	0.3	0.46	0.75	0.9
Working Distance(WD)[mm]	11	6	3.6	1.8	1.4
Field Number of The Objective [mm]	25				
Resolution [um]	2.1	0.9	0.6	0.37	0.31
Depth of Focus ±D.F [um]	16.3	3.1	1.3	0.49	0.34
Parfocalizing Distance [mm]	45				
Thread	M27X0.75				
Weight [g]	128	119	132	177	142

Note:The resolution and depth of focus of the objective are calculated from the reference wavelength（λ=550nm）

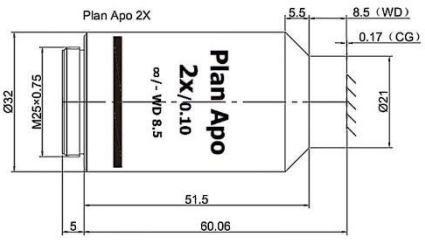
Plan Apo

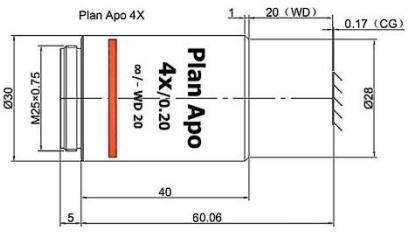
Plan Apo is biological objective lens with infinite conjugate parfocal distance of 60mm,with apochromatic correction with wide wavelength range.

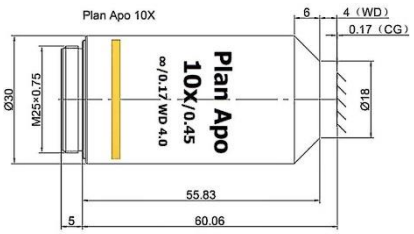
Feature

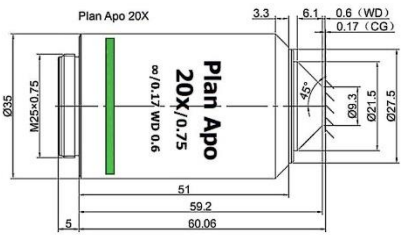
- Biological objective lens with infinite conjugate parfocal distance of 60mm
- Apochromatic correction with wide wavelength range
- Provides excellent image flatness across the entire field of view
- High numerical aperture, which can obtain the deep structure of the sample

Drawing









Specification

Name	Plan Apo			
	2X	4X	10X	20X
Optical system characteristics	Infinite Correction			
Observation method	Bright Filed / Fluorescence			
Level of chromatic aberration correction	Apochromatism			
Magnification [X]	2	4	10	20
Focal length [mm]	100	50	20	10
Field number of the objective [mm]	25			
Numerical aperture(NA)	0.1	0.2	0.45	0.75
Working distance(WD)[mm]	8.5	20	4	0.6
Cover glass thickness [mm]	/	/	0.17	0.17
Immersion liguid	Air			
Spring protection	/	/	/	√
Parfocalizing distance [mm]	60.06			
Thread	M25X0.75			
Weight [g]	207	166	187	265

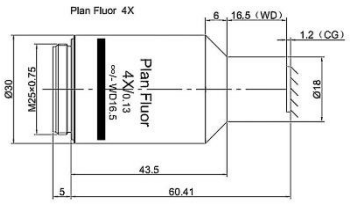
Plan Fluor

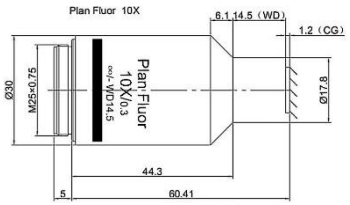
Plan Fluor is biological objective with infinite conjugate parfocal distance of 60mm.It has ultra-long working distance, and can be used for samples and containers of different thickness through the correction ring.

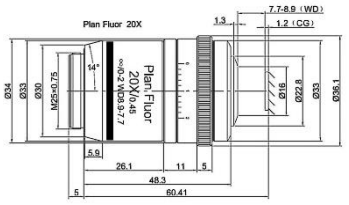
Feature

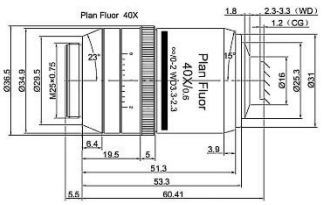
- Biological objective lens with infinite conjugate parfocal distance of 60mm
- Plan semi-apochromatic design
- Ultra-long working distance, and can be used for samples and containers of different thickness through the correction ring

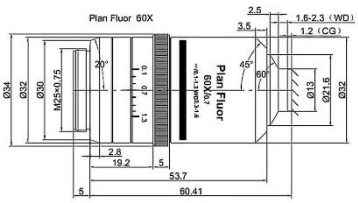
Drawing











Specification

Name	Plan Fluor				
	4X	10X	20X	40X	60X
Optical system characteristics	Infinite Correction				
Observation method	Bright Filed / Fluorescence				
Level of chromatic aberration correction	Semi-apochromatism				
Magnification [X]	4	10	20	40	60
Focal length [mm]	50	20	10	5	3.3
Field number of the objective [mm]	/				
Numerical aperture(NA)	0.13	0.3	0.45	0.6	0.7
Working distance(WD)[mm]	16.5	14.5	7.7-8.9	2.3-3.3	1.6-2.3
Cover glass thickness [mm]	/	/	0-2	0-2	0-2
Immersion liguid	Air				
Spring protection	/	/	√	√	√
Parfocalizing distance [mm]	60.41				
Thread	M25X0.75				
Weight [g]	142	158	321	303	259

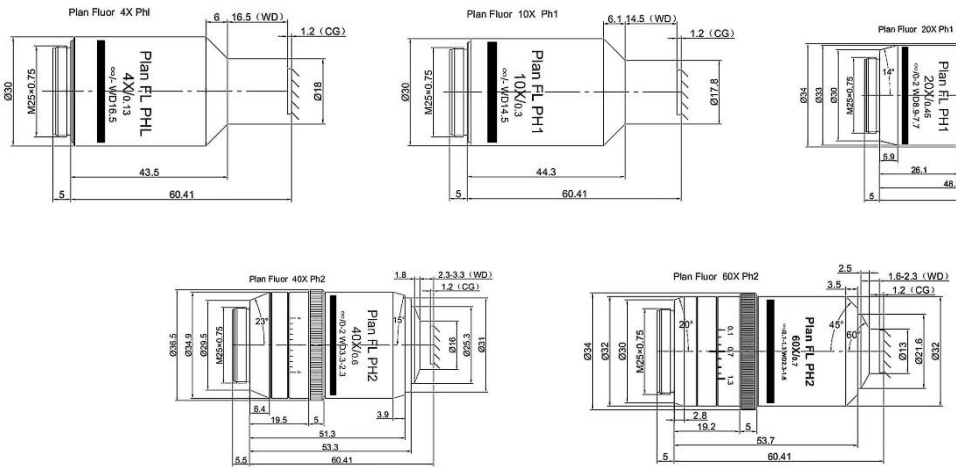
Plan Fluor Ph

Plan Fluor Ph is biological objective with infinite conjugate parfocal distance of 60mm.It has Phase-contrast device, providing high contrast observation for colorless specimen.

Feature

- Biological objective lens with infinite conjugate parfocal distance of 60mm
- Plan semi-apochromatic design
- Ultra-long working distance, and can be used for samples and containers of different thickness through the correction ring
- Phase-contrast device, providing high contrast observation for colorless specimen

Drawing



Specification

Name	Plan Fluor PHL	Plan Fluor PH1		Plan Fluor PH2	
	4X	10X	20X	40X	60X
Optical System Characteristics	Infinite Correction				
Observation Method	Bright Field / Dark Field / Fluorescence				
Level of Chromatic Aberration Correction	Semi-apochromatism				
Magnification [X]	4	10	20	40	60
Focal Length [mm]	50	20	10	5	3.3
Field Number of The Objective [mm]	/				
Numerical Aperture(NA)	0.13	0.3	0.45	0.6	0.7
Working Distance(WD)[mm]	16.5	14.5	7.7-8.9	2.3-3.3	1.6-2.3
Cover Glass Thickness [mm]	/	/	0-2	0-2	0-2
Immersion Liguid	Air				
Spring Protection	/	/	√	√	√
Parfocalizing Distance [mm]	60.41				
Thread	M25X0.75				
Weight [g]	142	158	321	303	263

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