UIS2 Objectives

Universal Infinity System

UIS2 optical characteristics for industrial and metallurgical applications.

MPLAPON series
This is a plan-apochromat objective series for brightfield observation with chromatic aberration corrected at a high level. We have realized optical performance (wavefront aberration) with a Strehl ratio[*1] of 95% or more[*2] with this series.

This series is also compatible with differential interference contrast or simple polarized observation.

MPLAPON100xO
This is an oil-immersion plan-apochromat objective[*3] that features a numerical aperture of 1.45. It provides our highest level of chromatic aberration correction and a high resolving power.

MXPLFLN(-BD) series
MXPLFLN objectives add depth to the MPLFLN series for epi-illumination imaging by offering simultaneously improved numerical aperture and working distance.

MPLFLN (-BD) series
These plan semi-apochromat objectives eliminate chromatic aberration at a high level, which is helpful for a wide range of microscopic methods, including brightfield, darkfield, fluorescence, Nomarski DIC[*4], and simple polarized observation. All 50X or higher objectives have a 1 mm working distance to minimize the risk of collision between the objective and sample. Since the exit pupil position of the 5X–150X objectives is standardized, the position of the DIC prism does not have to be switched when changing the magnification.

MPLFLN-BDP series
The plan semi-apochromat polarization design realizes thorough compensation for coma aberration. Distortion is also minimized, making these objectives the most appropriate choice in the UIS2 series for Nomarski DIC microscopy.

SLMPLN series
This super-long working distance plan achromat series minimizes the risk of collision between the sample and the objective. It also delivers high-contrast imaging.

LMPLFLN (-BD) series
This series of long working distance plan semi-apochromat objectives provides high-level correction for chromatic aberration and are suitable for observing samples with height or varying topography. Since the exit pupil position of the 5X–100X objectives is standardized, the position of the DIC prism does not have to be switched when changing the magnification. Use the BD series in brightfield and darkfield observation.

MPLN (-BD) series
Plan achromat objectives with excellent flatness up to OFN 22. Use the BD series in brightfield and darkfield observation.

LCPLFLN-LCD series
These objectives are designed for making observations through LCD panels and other samples that have a glass substrate. The correction collar provides aberration correction that can be matched to the thickness of the glass.

LMPLN-IR, LCPLN-IR series
Objective series designed for near-infrared microscopy to view the internal structure in silicon wafers. The LCPLN-IR series has correction collars for aberration depending on the thickness of the silicon or glass substrate.

Objectives	Magnifi-cations	NA	W.D. (mm)	Cover Glass Thickness[*5] (mm)	Silicon Thickness (mm)[*12]	Resolution[*6] (μm)
MPLAPON	50X	0.95	0.35	0	---	0.35
	100X	0.95	0.35	0	---	0.35
MPLAPON2	100XOil[*3]	1.45	0.1	0	---	0.23
MXPLFLN	20X	0.6	3	0	---	0.56
	50X	0.8	3	0	---	0.42
MXPLFLN-BD[*9]	20X	0.55	3	0	---	0.61
	50X	0.8	3	0	---	0.42
MPLFLN	1.25X[*7*8]	0.04	3.5	—	---	8.39
	2.5X[*8]	0.08	10.7	—	---	4.19
	5X	0.15	20.0	—	---	2.24
	10X	0.30	11.0	—	---	1.12
	20X	0.45	3.1	0	---	0.75
	40X[*4]	0.75	0.63	0	---	0.45
	50X	0.80	1.0	0	---	0.42
	100Xx	0.90	1.0	0	---	0.37
MPLFLN-BD[*9]	2.5X	0.08	8.7	—	---	4.19
	5X	0.15	12.0	—	---	2.24
	10X	0.30	6.5	—	---	1.12
	20X	0.45	3.0	0	---	0.75
	50X	0.80	1.0	0	---	0.42
	100X	0.90	1.0	0	---	0.37
	150X	0.90	1.0	0	---	0.37
MPLFLN-BDP[*9]	5X	0.15	12.0	—	—	2.24
	10X	0.25	6.5	—	—	1.34
	20X	0.40	3.0	0	—	0.84
	50X	0.75	1.0	0	—	0.45
	100X	0.90	1.0	0	—	0.37
SLMPLN	20X	0.25	25	—	—	1.34
	50X	0.35	18	0	—	0.96
	100X	0.6	7.6	0	—	0.56
LMPLFLN	5X	0.13	22.5	—	—	2.58
	10X	0.25	21.0	—	—	1.34
	20X	0.40	12.0	0	—	0.84
	50X	0.50	10.6	0	—	0.67
	100X	0.80	3.4	0	—	0.42
LMPLFLN-BD[*9]	5X	0.13	15.0	—	—	2.58
	10X	0.25	10.0	—	—	1.34
	20X	0.40	12.0	0	—	0.84
	50X	0.50	10.6	0	—	0.67
	100X	0.80	3.3	0	—	0.42
MPLN[*7]	5X	0.10	20.0	—	---	3.36
	10X	0.25	10.6	—	---	1.34
	20X	0.40	1.3	0	---	0.84
	50X	0.75	0.38	0	---	0.45
	100X	0.90	0.21	0	---	0.37
MPLN-BD[*7*9*10]	5X	0.10	12.0	—	—	3.36
	10X	0.25	6.5	—	—	1.34
	20X	0.40	1.3	0	—	0.84
	50X	0.75	0.38	0	—	0.45
	100X	0.90	0.21	0	—	0.37
LCPLFLN-LCD	20X	0.45	8.3 – 7.4	0 – 1.2	---	0.75
	50X	0.70	3.0 – 2.2	0 – 1.2	---	0.48
	100X	0.85	1.2 – 0.9	0 – 0.7	---	0.39
LMPLN-IR[*7]	5X	0.1	23	—		6.71[*11]
	10X	0.3	18	—		2.24[*11]
LCPLN-IR[*7]	20X	0.45	20X Glass:8.38 - 7.63 Silicon:8.38 - 7.07	0 – 1.2	0 – 1.2	1.49[*11]
	50X	0.65	50X Glass:4.50 - 3.76 Silicon:4.50 - 4.20	0 – 1.2	0 – 1.2	1.03[*11]
	100X	0.85	100X Glass:1.20 - 0.90 Silicon:1.20 - 1.05	0 – 0.7	0 – 1.0	0.79[*11]

*1 Strehl ratio: When the light condensing ratio (central intensity) on the image field of an ideal aplanatic optical system is assumed as 100%, a light condensing ratio in % that an actual optical system can condense is known as Strehl ratio. The greater is this numeric value, the better becomes the quality of an optical system.

*2 Strehl Ratio is guaranteed by the following conditions. •Measurement : Transmitted Wavefront Interferometer (Evident in-house equipment) •Temperature : 23 ± 1 centigrade •Measurement Area : 97% in pupil diameter

*3 Specified oil: IMMOIL-F30CC

*4 The MPLFLN40x objective is not compatible with the differential interference contrast microscopy.

*5 — : Applicable to the view of specimens with/without a cover glass
0 : Applicable to the view of specimens without a cover glass

*6 Resolutions calculated with aperture iris diaphragm wide open.

*7 Limited up to OFN 22. No compliance with OFN 26.5.

*8 Analyzer and polarizer are recommended for use with MPLFLN1.25x or 2.5x.

*9 BD: Brightfield/darkfield objectives

*10 Slight vignetting may occur in the periphery of the field when MPLN-BD series objectives are used with high-intensity light sources such as mercury and xenon for darkfield observation.

*11 With the use of 1100 nm laser.

*12 --- Not applicable.