

Glass Thickness Compensation Near Ultra-violet Objective Lenses

PAL-NUV-LC

RoHS

This objective lens can be used for laser machining using pulsed laser of THG (355nm) YAG laser. Its glass-thickness- compensation optical design makes it possible to realize an ideal beam spot size and quality even if it was processed thorough a cover glass.

- Two kinds objective lenses are available. They are designed to correct aberration depending on the thickness of cover glass.
($t = 0.7 \text{ mm}$ and 1.1 mm)
- High resolution type (NA=0.65) is also available.
- With its long working infinity correction function; this objective lens can be used for a laser system and coaxial observation.
- This objective lens can be used with a pulse laser of visible light (532nm).
- Laser Damage Threshold(reference): 0.05 J/cm^2 (355nm), 0.1 J/cm^2 (532nm)
(Laser pulse width: 10ns, repetition frequency: 20Hz)



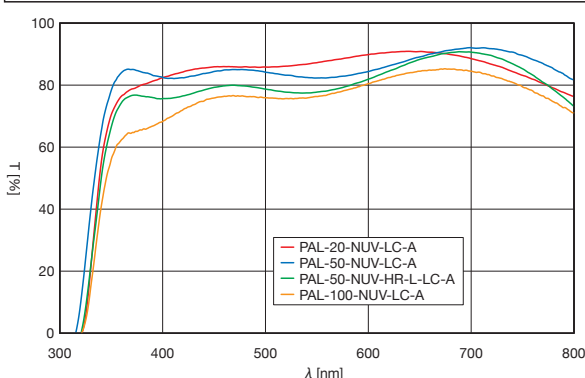
Guide

- ▶ Available fixed objective lens holder (LHO-26).
▶ [WEB Reference](#) [Catalog Code](#) W4024
- ▶ When the objective lens is fixed to a 2 axis holder, please consult our Sales Division.
- ▶ For laser processing, we offer a dichoric block (DIMC) and for laser unit with coaxial illumination and observation (OUCI-2).
▶ [WEB Reference](#) [Catalog Code](#) W2041, [WEB Reference](#) [Catalog Code](#) W2012

Attention

- ▶ When an objective lens is used in laser processing, use the diameter of the incident beam to extend to a size of half the pupil diameter ($1/e^2$). A small light spot cannot be achieved when the incident beam is too narrow. Please note if there is a laser energy density increase, there will be a high possibility of damage to the objective lens.
- ▶ When the thickness of cover glass is not same as the specified, designed specifications may not be achieved due to aberration.
- ▶ Magnification is the value when using the imaging lens $f=200\text{mm}$. When used in a microscope lens barrel from other manufacturers there may be different magnifications. The actual magnification should be calculated from the ratio of the focal length of the objective lens and the focal length of the imaging lens to verify the focal length of the imaging lens barrel to be used.

Typical Transmittance Data T: Transmission



Specifications										
Part Number	Item name	Magnification	Focal length f [mm]	Numerical aperture NA	Working Distance W.D. [mm]	Resolution Distance W.D. ($\lambda=550\text{nm}$) [μm]	Focal depth ($\lambda=550\text{nm}$) [μm]	Real field of view (Eyepiece $\phi 24\text{mm}$) (Imaging device 1/2-inch) [mm]		Weight [kg]
PAL-20-NUV-LC07-A	LCD PlanApo NUV 20x (t0.7)	20×	10	0.40	17.35	0.69	± 1.7	$\phi 1.2$	0.24×0.32	0.35
PAL-20-NUV-LC11-A	LCD PlanApo NUV 20x (t1.1)	20×	10	0.40	17.40	0.69	± 1.7	$\phi 1.2$	0.24×0.32	0.35
PAL-50-NUV-LC07-A	LCD PlanApo NUV 50x (t0.7)	50×	4	0.45	15.05	0.61	± 1.4	$\phi 0.48$	0.10×0.13	0.36
PAL-50-NUV-LC11-A	LCD PlanApo NUV 50x (t1.1)	50×	4	0.45	15.01	0.61	± 1.4	$\phi 0.48$	0.10×0.13	0.36
PAL-50-NUV-HR-L-LC07-A	LCD PlanApo NUV HR 50x (t0.7)	50×	4	0.65	9.91	0.42	± 0.7	$\phi 0.48$	0.10×0.13	0.51
PAL-50-NUV-HR-L-LC11-A	LCD PlanApo NUV HR 50x (t1.1)	50×	4	0.65	9.89	0.42	± 0.7	$\phi 0.48$	0.10×0.13	0.51
PAL-100-NUV-LC07-A	LCD PlanApo NUV 100x (t0.7)	100×	2	0.50	15.00	0.48	± 0.8	$\phi 0.24$	0.05×0.06	0.39
PAL-100-NUV-LC11-A	LCD PlanApo NUV 100x (t1.1)	100×	2	0.50	15.00	0.48	± 0.8	$\phi 0.24$	0.05×0.06	0.39

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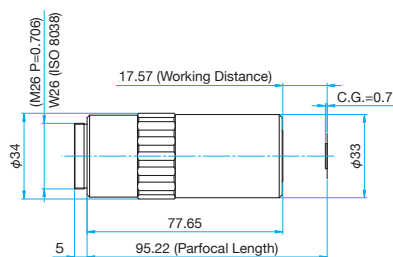
Bio-photonics

Laser Processing

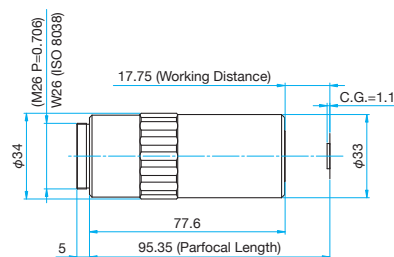
Outline Drawing

(in mm)

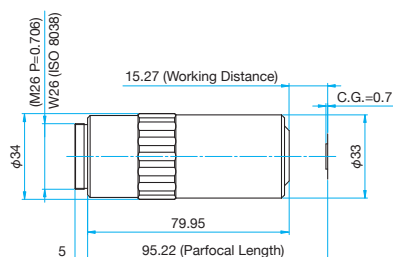
PAL-20-NUV-LC07-A



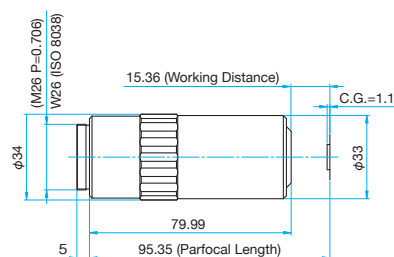
PAL-20-NUV-LC11-A



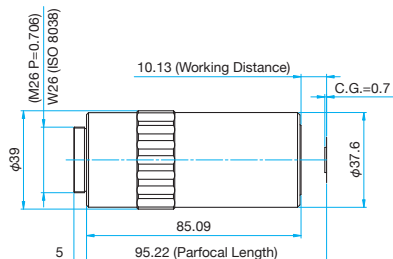
PAL-50-NUV-LC07-A



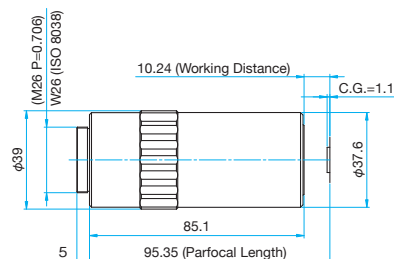
PAL-50-NUV-LC11-A



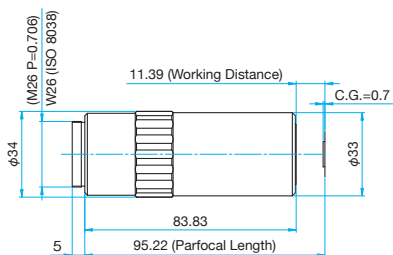
PAL-50-NUV-HR-L-LC07-A



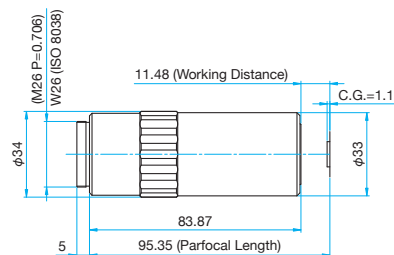
PAL-50-NUV-HR-L-LC11-A



PAL-100-NUV-LC07-A



PAL-100-NUV-LC11-A



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