Glass Thickness Compensation Near Infrared Objective Lenses

PAL-NIR-LC RoHS

This is a high NA infinity corrected objective lens for laser processing (fundamental of 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 mm and 1.1 mm)
- With its long working infinity correction function; this objective lens can be used for a laser system and coaxial observation.
- It is also used for the observation of Near Infrared light.
- High resolution type (NA=0.67) is also available.
- This objective lens can be used with a pulse laser of visible light (532nm).
- Laser Damage Threshold (reference): 0.1J/cm^2 (532nm), 0.2 J/cm^2 (1064nm) (Laser pulse width: 10ns, repetition frequency: 20Hz)

Guide

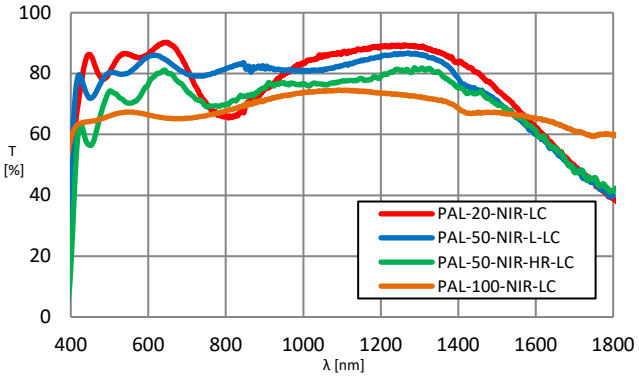
▸Available fixed objective lens holder (LHO-26).

▸When the objective lens is fixed to a 2 axis holder, please consult our Sales Division.
▸For laser processing, we offer a dichroric block (DIMC) and for laser unit with coaxial illumination and observation (OUCI-2)

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. If the incident laser beam femtosecond is below 100fs, there is a possibility that the pulse width will spread.
- ▸ Magnification is the value when using the imaging lens f=200mm. 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



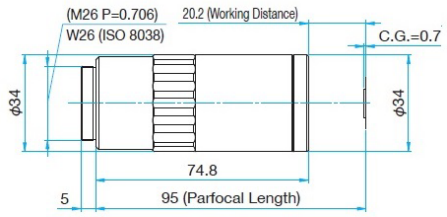
Specifications

Part Number	Item name	Magnification	Focal length f[mm]	N.A.	Working Distance W.D.*2 [mm]	Resolution (λ=550nm) *1 [μm]	Focal depth*1 (λ=550nm) [μm]	Real field of view[mm]		Weight [kg]
								(Eyepiece φ24mm)	(1/2"CCD)	
PAL-20-NIR-LC07	LCD MPlanApo NIR 20x(t0.7)	20×	10	0.4	19.98	0.69	±11.7	φ1.2	0.24×0.32	0.36
PAL-20-NIR-LC11	LCD MPlanApo NIR 20x(t1.1)	20×	10	0.4	19.85	0.69	±11.7	φ1.2	0.24×0.32	0.36
PAL-50-NIR-L-LC07	LCD MPlanApo NIR 50x(t0.7)	50×	4	0.45	15.01	0.61	±11.4	φ0.48	0.10×0.13	0.34
PAL-50-NIR-L-LC11	LCD MPlanApo NIR 50x(t1.1)	50×	4	0.45	14.97	0.61	±11.4	φ0.48	0.10×0.13	0.34
PAL-50-NIR-HR-LC07	LCD MPlanApo NIR HR50x(t0.7)	50×	4	0.67	10.48	0.41	±10.61	φ0.48	0.10×0.13	0.48
PAL-100-NIR-LC07	LCD MPlanApo NIR 100x(t0.7)	100×	2	0.53	12.18	0.52	±11	φ0.24	0.05×0.06	0.33
PAL-100-NIR-LC11	LCD MPlanApo NIR 100x(t1.1)	100×	2	0.53	12.16	0.52	±11	φ0.24	0.05×0.06	0.33

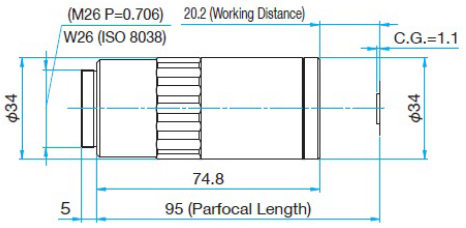
※1; Resolution and focal depth are calculated value at wavelength of 0.55μm.
※2; Working distance: value at air

Outline Drawing

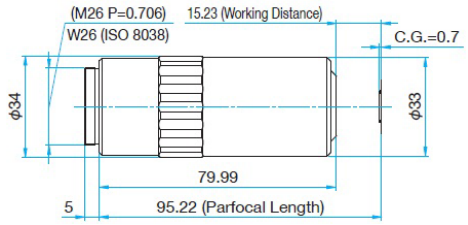
PAL-20-NIR-LC07



PAL-20-NIR-LC11



PAL-50-NIR-L-LC07



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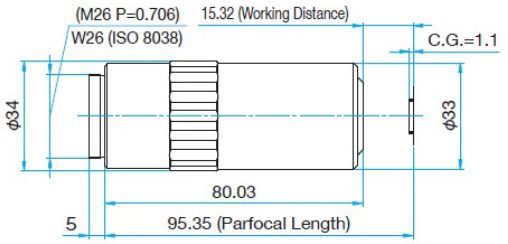

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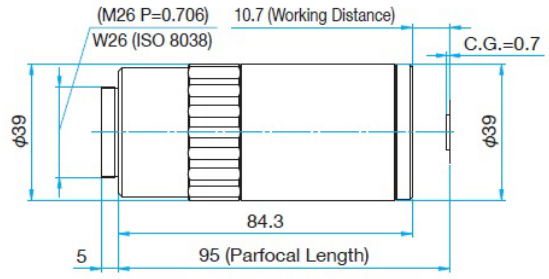

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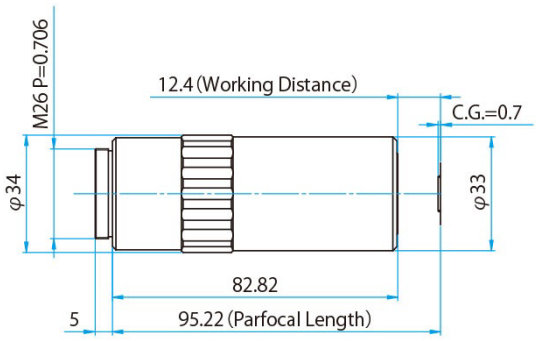

PAL-100-NIR-LC11