

# SELFOC® IMAGING LENS

The SELFOC Imaging lens is commonly used as an objective lens for small diameter imaging systems where conventional lenses are not suitable due to size limitation.

The lens is designed to gather light from an object and form an inverted image at the back surface of the lens. Typical applications include fiberscope (attached to a fiber bundle) or rigid endoscope (attached to a relay lens such as a SELFOC Rod Lens).

SELFOC Imaging Lenses are specified somewhat differently than SELFOC Microlens (SML). While SML performance is controlled through the lens pitch and gradient constant ( $\sqrt{A}$ ), Imaging Lens performance is controlled via the working distance (WD) and image quality factors such as resolution and field curvature. For this reason, ILW and ILH lenses can consistently exhibit good image quality despite variations in  $\sqrt{A}$  and/or Z (Lens Length). We introduced many new OD on both ILW and ILH.

## Features:

- Small Diameter
- Stable Cylindrical Shape
- Simplified Mounting

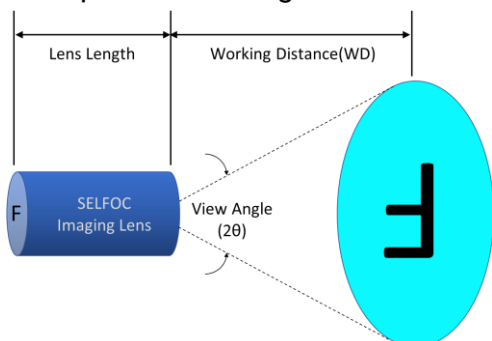
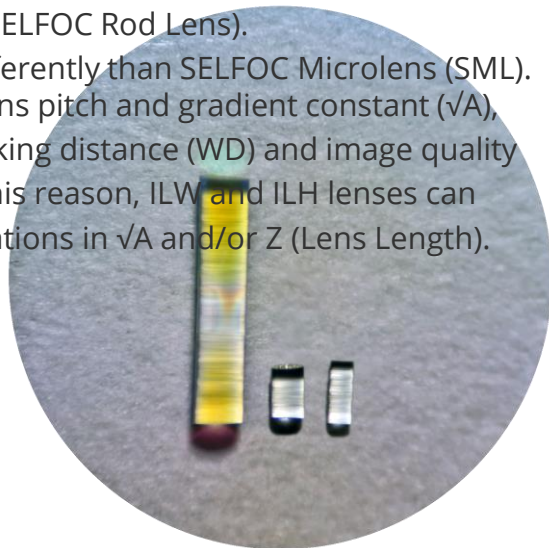


Figure 1: Imaging Coupling

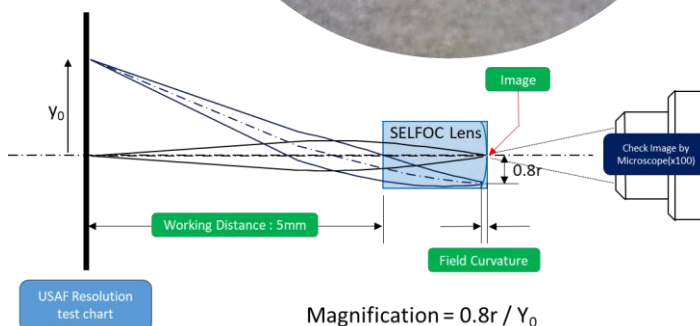


Figure 2: Imaging Lens Test Set-up

Table 1 : Basic Character ( $\lambda = 550\text{nm}$ )

Type	Dia. (mm)	$\sqrt{A}$ ( $\text{mm}^{-1}$ )	Refractive Index at center	Angle of View $2\theta$	NA on Axis ( $2\theta$ )	Type	Dia. (mm)	$\sqrt{A}$ ( $\text{mm}^{-1}$ )	Refractive Index at center	Angle of View $2\theta$	NA on Axis ( $2\theta$ )
ILW025	0.25	2.319	1.643	$\geq 50^\circ$	0.46	ILH020	0.2	4.020	1.666	$\geq 70^\circ$	0.6
ILW035	0.35	1.710				ILH025	0.25	3.216			
ILW050	0.5	1.203				ILH030	0.3	2.562			
ILW060	0.6	0.999				ILH035	0.35	2.196			
ILW070	0.7	0.856				ILH040	0.4	1.961			
ILW100	1.0	0.600				ILH045	0.45	1.743			
ILW130	1.3	0.462				ILH050	0.5	1.569			
ILW180	1.8	0.331				ILH060	0.6	1.304			
ILW200	2.0	0.299				ILH070	0.7	1.118			
ILW270	2.7	0.222				ILH080	0.8	0.978			
						ILH085	0.85	0.921			
						ILH100	1.0	0.786			



## Optical and Mechanical Specification :

Table 2 Standard Lens (WD=5mm) Specification & Optical performance ( $\lambda = 550\text{nm}$ )

Type	Dia. (mm)	Length (mm)	WD (mm)	Resolution LP/mm		Magnification	Field Curvature ( $\mu\text{m}$ )	Chromatic Aberration ( $\mu\text{m}$ )	
				Center	at 0.8R				
ILW025	0.25	0.7 ± 0.10	5	400	150	19.1	40	49	
ILW035	0.35	0.96 ± 0.10	5	300	120	14.1	40	49	
ILW050	0.5	1.39 ± 0.13	5	250	100	9.9	50	51	
ILW060	0.6	1.66 ± 0.17	5	210	80	8.6	60	62	NEW!!
ILW070	0.7	2.00 ± 0.20	5	200	80	7.1	60	82	
ILW100	1.0	2.95 ± 0.30	5	200	50	5.1	80	102	
ILW130	1.3	3.96 ± 0.35	5	180	40	3.9	100	144	
ILW180	1.8	5.71 ± 0.52	5	160	30	3.0	140	229	NEW!!
ILW200	2.0	6.54 ± 0.60	5	160	30	2.7	150	261	
ILW270	2.7	9.34 ± 0.80	5	140	20	2.1	200	314	
ILH020	0.2	0.38 ± 0.09	5	430	170	32.8	30	35	NEW!!
ILH025	0.25	0.50 ± 0.10	5	400	150	26.9	40	35	
ILH030	0.3	0.60 ± 0.10	5	370	130	21.9	60	35	NEW!!
ILH035	0.35	0.74 ± 0.10	5	370	120	18.4	60	35	
ILH040	0.4	0.82 ± 0.12	5	320	100	16.4	70	37	NEW!!
ILH045	0.45	0.92 ± 0.13	5	310	90	14.6	80	38	NEW!!
ILH050	0.5	1.05 ± 0.15	5	300	80	13.1	80	42	
ILH060	0.6	1.25 ± 0.17	5	280	60	11.0	100	43	NEW!!
ILH070	0.7	1.50 ± 0.20	5	280	60	9.4	100	47	
ILH080	0.8	1.68 ± 0.23	5	270	50	8.3	100	56	NEW!!
ILH085	0.85	1.79 ± 0.25	5	270	40	7.8	100	60	NEW!!
ILH100	1.0	2.19 ± 0.30	5	250	30	6.7	100	76	

**Special Note :**

Standard Working Distance is 5mm

Diameter tolerance : +0/0.05mm

Resolution is measured on a U.S. Air Force chart while a x100 microscope focused on the back surface of the imaging lens with distance of 5mm(see Figure 2). Resolution is measured at both lens center and 80% of the lens radius.

Filed curvature is the difference in image positions at the lens center and at 80% of the lens radius.

End surface is inspected at x20 magnification. No chips or cracks are allowed within 90% of the diameter.

Material Toxicity : This product contains components that might be toxic. The user is advised to pay special attention to such toxicity when using this product in medical for people or animal.

Storage and Handling : Please refer SML technical note



# Ordering Guide:

