



mag.x System 125 - Optical specifications

Objective Lens - Plan Apochromat						Tube Lenses							
						$M_{\text{tube}}: 1$				$M_{\text{tube}}: 2.25$			
						$f'_{\text{tube}}: 250 \text{ mm}$				$f'_{\text{tube}}: 563 \text{ mm}$			
						$2y': 25 \text{ mm}$				$2y': 57 \text{ mm}$			
M_{obj}	NA	WD _{obj}	f'_{obj}	δ_{obj}	R_0	M	2y	NA'	R'_0	M	2y	NA'	R'_0
	[]	[mm]	[mm]	[μm]	[lp/mm]	[]	[mm]	[]	[lp/mm]	[]	[mm]	[]	[lp/mm]
2.0	0.08	24.2	125.0	± 42.7	293	2.0	12.5	0.04	147	4.5	12.5	0.018	65
5.0	0.20	13.2	50.0	± 6.8	733	5.0	5.0	0.04	147	11.3	5.0	0.018	65

- NA : Numerical aperture in the object space; $NA = n \cdot \sin(\sigma)$
 WD_{obj} : Free working distance objective lens
 f'_{obj} : Focal length of the objective lens
 f'_{tube} : Focal length of the tube lens
 δ_{obj} : Depth of field at 546 nm; $\delta_{\text{obj}} = \pm n \cdot \lambda / (2 \cdot NA^2)$
 R_0 : Cut off frequency in object space at 546 nm; $R_0 = (2 \cdot NA) / \lambda$
 R'_0 : Cut off frequency in image space at 546 nm; $R'_0 = R_0 / M$
 2y : Object field size
 2y' : Image field size (maximum detector diagonal)
 M_{obj} : Magnification of objective lens
 M_{tub} : Magnification of tube lens
 M : Magnification of the overall system; $M = M_{\text{obj}} \cdot M_{\text{tub}}$