














Selected Objective	Standard Magnification Colour	Refractive index (n) of immersion medium in front of objective	Lateral resolution (μm) $d = 0.61 \lambda / \text{NA}$	Axial resolution (μm) $(z_{\text{min}}) = 2n\lambda / \text{NA}^2$	Visual depth of field, DoF (μm) object side = $(\lambda n / 2\text{NA}_{\text{obj}})^2 + n \cdot 75 / \text{Mag}_{\text{TOT}} \cdot \text{NA}_{\text{obj}}$	Approximate depth of field, DoF (μm) $(= n\lambda / 2\text{NA}^2)$	Approximate depth of focus (mm) image side = $([\lambda n / \text{NA}_{\text{obj}}]^2) \times \text{Mag}_{\text{TOT}}^2$	Brightness factor $(\text{NA}^4 / \text{M}_{\text{obj}}^2) \times 10^4$	Optical Index $\text{NA} \times 1000 / \text{Mag}_{\text{obj}}$	Example Working Distance (mm)
2.5x / NA 0.075 dry		n = 1.0 (air)	3.97	174	83	43	54	0.05	30	Plan-neofluar = 9.5 mm
5x / NA 0.13 dry		n = 1.0 (air)	2.29	57.8	25.5	14	72	0.11	26	Plan-achromat = 5.5 mm
6.3x / NA 0.16 dry		n = 1.0 (air)	1.86	38.13	17.4	10	76	0.17	25.4	Plan-achromat = 4.9 mm UVI for microdissection = 12.8 mm (LWD)
10x / NA 0.25 dry		n = 1.0 (air)	1.19	15.62	7.0	4	78	0.4	25	Plan-achromat 1 = 3.9 mm Plan-achromat 2 = 10 mm (LWD)
10x / NA 0.30 dry		n = 1.0 (air)	0.99	10.84	5.5	3	54	0.8	30	Plan-neofluar = 5.5 mm Plan-fluorite = 16 mm (LWD)
20x / NA 0.5 dry		n = 1.0 (air)	0.60	3.90	1.8	1	78	1.6	25	Plan-neofluar = 2.0 mm
20x / NA 0.75 dry		n = 1.0 (air)	0.40	1.74	0.9	0.4	35	7.9	37.5	Plan-apochromat 1 = 0.60 mm Plan-apochromat 2 = 0.36 mm
20x / NA 0.8 dry		n = 1.0 (air)	0.37	1.53	0.9	0.4	31	10.2	40	Plan-apochromat 1 = 0.55 mm
20x / NA 1.0 W water		n = 1.333 (water)	0.30	1.30	0.8	0.3	26	25.0	50	Plan-apochromat 1 = 2.3 mm Plan-apochromat 2 = 2.0 mm Plan-apochromat 3 = 1.95 mm
25x / NA 0.8 Multi-immersion		n = 1.333 (water) n = 1.456 (glycerol) n = 1.518 (oil)	0.37	2.03 2.22 2.31	0.7 1.1 1.2	0.5 0.6 0.6	64 69 72	6.6	32	Plan-neofluar = 0.21 mm Plan-apochromat = 0.57 mm (LWD)
30x / NA 1.05 silicone		n = 1.406 (silicone)	0.28	1.24	0.6	0.3	56	13.5	35	UPL-S apochromat = 0.80 mm
40x / NA 0.75 dry		n = 1.0 (air)	0.40	1.74	0.7	0.4	139	2.0	18.8	Plan-neofluar 1 = 0.63 mm Plan-neofluar 2 = 0.37 mm
40x / NA 1.2 W water		n = 1.333 (water)	0.25	0.90	0.4	0.2	72	13.0	30	Plan-apochromat 1 = 0.19 mm Plan-apochromat 2 = 0.2 – 0.16 mm Plan-apochromat 3 = 0.28 mm