

Neutral-Density filters

Optical Density	% Transmission (Nominal) ^{*1)}	Nikon ^{*2)}	Carl Zeiss
0.15	70%		
0.3	50%	ND2	VND 0.3
0.4	40%		
0.5	32%		
0.6	25%	ND4	VND 0.6
0.9	12.5%	ND8	
1.0	10%		VND 1.0
1.3	5%		VND 1.3
2.0	1%		

(Equations)

$$D = \log_{10} \times 1/T$$

$$\% \text{ Transmission} = T \times 100 = 10^{-D} \times 100$$

Where,
D: Optical density
T: Transmitted radiant power

*1) Most ND filters are metallic type, made of metal alloy-coated glass. They attenuate a broad range of light corresponding human eye's light spectrum (400-750 nm). Most ND filters are partially absorbing and reflecting. Different wavelength is filtered slightly different and therefore the specification values are nominal.

*2) Different manufacture uses different nomination. Nikon's ND2, 4, or 8 indicates that the aperture is closed by 1, 2, or 3 stops, attenuating the intensity by 2¹, 2², or 2³ because the total radiance is proportional to the square of surface area.

(Note) Quality of ND filters are very different among manufacturers. Coating of some filters will burn out quickly. Variable type of ND filters are also available.