

W-ND Series

HOYA CORPORATION USA has developed and released a new world standard W-ND filters with top quality and excellent optical performance. Our W-ND series is designed to match the world standard and different from our current line of neutral density glass types in terms of thickness and transmittance.

Neutral density filters can be used for various purposes including adjustment of light amount as the light intensity can be controlled without selectively absorbing light with a specific wavelength.

“W-ND” Series LINE UP:

W-ND1	W-ND4	W-ND9
W-ND3	W-ND5	W-ND11

Neutral Density Product Portfolio:

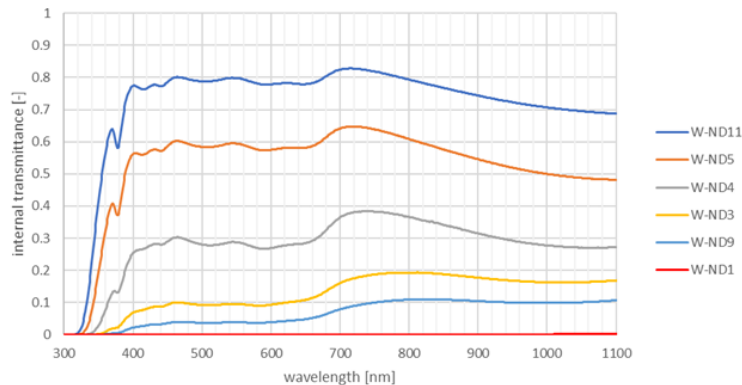
	W-ND	ND
Standard Thickness	t1.0mm*	t2.5mm*
Transmittance	Specified at 405nm, 546nm, 694nm	Average 400-700nm
	Internal Transmittance	External Transmittance

“W-ND” Series in our Standard Sizes:

- Polished or Unpolished
- 50 x 50mm (polished)
- 165 x 165mm (polished)
- 165 x 165 x t3.35mm (Unpolished)
- 165 x 165 x t4.5mm (Unpolished)
- 165 x 165 x t9.0mm (Unpolished)

*Optical characteristics of W-ND/ND series filters are always made by adjusting thickness of the glass.

“W-ND” Series Transmittance (t=1.0mm):



*Above transmittance is measured as internal transmittance at 1.0mm.

*All data is mean values of various melts.

“W-ND” Series Specification:

Our newly introduced W-ND Series of absorption type Neutral Density Filters are widely available with specific OD or transmittance values. We are able to achieve the expansive offering by adjusting thickness based on the characteristics of the mother glass. Our new Neutral Density Filter types make it possible to provide particularly high density filters. The table below reflects the W-ND filter series options by OD value and typical thickness.

Optical Density	Transmission (T%)	Mother Glass	Typical Thickness (mm)	Standard*
0.15	70	W-ND11	1.1	
0.3	50	W-ND11	2.3	✓
0.6	25	W-ND5	2.3	✓
1.0	10	W-ND4	1.7	✓
1.3	5	W-ND4	2.3	✓
1.6	2.5	W-ND3	1.6	
2.0	1	W-ND3	2.0	✓
2.3	0.5	W-ND3	2.3	
2.6	0.25	W-ND9	1.9	
3.0	0.1	W-ND9	2.1	✓
3.3	0.05	W-ND9	2.3	
3.6	0.025	W-ND9	2.6	
4.0	0.01	W-ND9	2.8	✓
4.3	0.005	W-ND9	3.1	
4.6	0.0025	W-ND9	3.3	
5.0	0.001	W-ND9	3.5	✓

*Standard polished glass (50x50 size) is available.

*All data is mean values of various melts.

*Optical characteristics of W-ND/ND series filters are always made by adjusting thickness of the glass.