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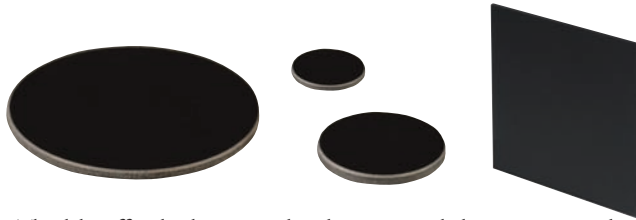
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Absorptive Neutral Density Filters: 400 – 700 nm (Page 1 of 2)



- Ideal for Low-Power Applications
- Absorptive Glass Reduces Multiple Reflections
- Optical Densities from 0.1 to 6.0

Thorlabs offers both mounted and unmounted absorptive neutral density filters with optical densities (OD) ranging from 0.1 to 6.0. Unlike their metallic counterparts, each absorptive ND filter is fabricated from one member of a family of Schott glasses (NG1, NG4, NG9, or NG11), each with a spectrally flat absorption coefficient. The OD of the filter is controlled by varying the type of glass used and the thickness of the glass.

All data provided in the tables below is specified at 633 nm. Optical density varies with wavelength. Please see opposite page for transmission plots.

The optical density (OD) is defined by $OD = \log_{10}(1/T)$ or alternatively, $T = 10^{-OD}$ where T is the transmittance. Note that when defined this way, the optical density is synonymous with absorbance.

Specifications

- **Substrate:** NG1, NG4, NG9, or NG11 (Schott)
- **Clear Aperture**
 - 90% of Diameter (Rounds)
 - 90% of Length and Height (Squares)
- **Dimensional Tolerance:** +0.0/-0.25 mm
- **Optical Density Tolerance:** ±5% at 633 nm
- **Parallelism:** ≤10 arcsec for Ø25.0 mm, Ø2", 2" x 2" ≤3 arcmin for Ø1/2"
- **Transmitted Wavefront Error:** < λ/10 at 633 nm
- **Surface Flatness**
 - Ø1/2": < λ/4
 - Ø1": < λ/4
 - Ø2": < λ
 - 2" Square: < 2λ
- **Surface Quality:** 40-20 Scratch-Dig

Unmounted Ø1/2" Absorptive Neutral Density Filters

ITEM #	\$	£	€	RMB	OD*	THICKNESS**
NE501B	\$ 19.50	£ 14.04	€ 16,97	¥ 155.42	0.1	0.56 mm
NE502B	\$ 19.50	£ 14.04	€ 16,97	¥ 155.42	0.2	1.43 mm
NE503B	\$ 19.50	£ 14.04	€ 16,97	¥ 155.42	0.3	2.30 mm
NE504B	\$ 19.50	£ 14.04	€ 16,97	¥ 155.42	0.4	0.71 mm
NE505B	\$ 19.50	£ 14.04	€ 16,97	¥ 155.42	0.5	0.91 mm
NE506B	\$ 19.50	£ 14.04	€ 16,97	¥ 155.42	0.6	1.10 mm
NE510B	\$ 19.50	£ 14.04	€ 16,97	¥ 155.42	1.0	1.89 mm
NE513B	\$ 19.50	£ 14.04	€ 16,97	¥ 155.42	1.3	2.48 mm
NE520B	\$ 19.50	£ 14.04	€ 16,97	¥ 155.42	2.0	1.40 mm
NE530B	\$ 19.50	£ 14.04	€ 16,97	¥ 155.42	3.0	2.11 mm
NE540B	\$ 19.50	£ 14.04	€ 16,97	¥ 155.42	4.0	2.83 mm
NE550B	\$ 19.50	£ 14.04	€ 16,97	¥ 155.42	5.0	3.55 mm
NE560B	\$ 19.50	£ 14.04	€ 16,97	¥ 155.42	6.0	1.50 mm

*Optical Density at 633 nm ** Determined by the OD of the particular lot of material

Unmounted Ø25.0 mm Absorptive Neutral Density Filters

ITEM #	\$	£	€	RMB	OD*	THICKNESS**
NE01B	\$ 32.00	£ 23.04	€ 27,84	¥ 255.04	0.1	0.56 mm
NE02B	\$ 32.00	£ 23.04	€ 27,84	¥ 255.04	0.2	1.43 mm
NE03B	\$ 32.00	£ 23.04	€ 27,84	¥ 255.04	0.3	2.30 mm
NE04B	\$ 32.00	£ 23.04	€ 27,84	¥ 255.04	0.4	0.71 mm
NE05B	\$ 32.00	£ 23.04	€ 27,84	¥ 255.04	0.5	0.91 mm
NE06B	\$ 32.00	£ 23.04	€ 27,84	¥ 255.04	0.6	1.10 mm
NE10B	\$ 32.00	£ 23.04	€ 27,84	¥ 255.04	1.0	1.89 mm
NE13B	\$ 32.00	£ 23.04	€ 27,84	¥ 255.04	1.3	2.48 mm
NE20B	\$ 32.00	£ 23.04	€ 27,84	¥ 255.04	2.0	1.40 mm
NE30B	\$ 32.00	£ 23.04	€ 27,84	¥ 255.04	3.0	2.11 mm
NE40B	\$ 32.00	£ 23.04	€ 27,84	¥ 255.04	4.0	2.83 mm
NE50B	\$ 32.00	£ 23.04	€ 27,84	¥ 255.04	5.0	3.55 mm
NE60B	\$ 32.00	£ 23.04	€ 27,84	¥ 255.04	6.0	1.50 mm

*Optical Density at 633 nm ** Determined by the OD of the particular lot of material

Unmounted Ø2" Absorptive Neutral Density Filters

ITEM #	\$	£	€	RMB	OD*	THICKNESS**
NE2R01B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	0.1	0.56 mm
NE2R02B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	0.2	1.43 mm
NE2R03B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	0.3	2.30 mm
NE2R04B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	0.4	0.71 mm
NE2R05B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	0.5	0.91 mm
NE2R06B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	0.6	1.10 mm
NE2R10B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	1.0	1.89 mm
NE2R13B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	1.3	2.48 mm
NE2R20B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	2.0	1.40 mm
NE2R30B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	3.0	2.11 mm
NE2R40B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	4.0	2.83 mm
NE2R50B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	5.0	3.55 mm
NE2R60B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	6.0	1.50 mm

*Optical Density at 633 nm ** Determined by the OD of the particular lot of material

Unmounted 2" x 2" Square Absorptive Neutral Density Filters

ITEM #	\$	£	€	RMB	OD*	THICKNESS**
NE201B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	0.1	0.56 mm
NE202B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	0.2	1.43 mm
NE203B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	0.3	2.30 mm
NE204B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	0.4	0.71 mm
NE205B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	0.5	0.91 mm
NE206B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	0.6	1.10 mm
NE210B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	1.0	1.89 mm
NE213B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	1.3	2.48 mm
NE220B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	2.0	1.40 mm
NE230B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	3.0	2.11 mm
NE240B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	4.0	2.83 mm
NE250B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	5.0	3.55 mm
NE260B	\$ 75.00	£ 54.00	€ 65,25	¥ 597.75	6.0	1.50 mm

*Optical Density at 633 nm ** Determined by the OD of the particular lot of material

Absorptive Neutral Density Filters: 400 – 700 nm (Page 2 of 2)



- Filters Mounted in SM05-*, SM1-**, or SM2-** Compatible Cells
- Housing Labeled with OD and Part Number

*Clear Aperture is Limited to Ø11 mm by Mount

**Clear Aperture is Not Limited by Mount

SM05-Mounted Ø12.7 mm Absorptive Neutral Density Filters

ITEM #	\$	£	€	RMB	OD*
NE501A	\$ 33.00	£ 23.76	€ 28,71	¥ 263.01	0.1
NE502A	\$ 33.00	£ 23.76	€ 28,71	¥ 263.01	0.2
NE503A	\$ 33.00	£ 23.76	€ 28,71	¥ 263.01	0.3
NE504A	\$ 33.00	£ 23.76	€ 28,71	¥ 263.01	0.4
NE505A	\$ 33.00	£ 23.76	€ 28,71	¥ 263.01	0.5
NE506A	\$ 33.00	£ 23.76	€ 28,71	¥ 263.01	0.6
NE510A	\$ 33.00	£ 23.76	€ 28,71	¥ 263.01	1.0
NE513A	\$ 33.00	£ 23.76	€ 28,71	¥ 263.01	1.3
NE520A	\$ 33.00	£ 23.76	€ 28,71	¥ 263.01	2.0
NE530A	\$ 33.00	£ 23.76	€ 28,71	¥ 263.01	3.0
NE540A	\$ 33.00	£ 23.76	€ 28,71	¥ 263.01	4.0
NE550A	\$ 33.00	£ 23.76	€ 28,71	¥ 263.01	5.0
NE560A	\$ 33.00	£ 23.76	€ 28,71	¥ 263.01	6.0

*Optical Density specified at 633 nm

SM1-Mounted Ø25.0 mm Absorptive Neutral Density Filters

ITEM #	\$	£	€	RMB	OD*
NE01A	\$ 47.00	£ 33.84	€ 40,89	¥ 374.59	0.1
NE02A	\$ 47.00	£ 33.84	€ 40,89	¥ 374.59	0.2
NE03A	\$ 47.00	£ 33.84	€ 40,89	¥ 374.59	0.3
NE04A	\$ 47.00	£ 33.84	€ 40,89	¥ 374.59	0.4
NE05A	\$ 47.00	£ 33.84	€ 40,89	¥ 374.59	0.5
NE06A	\$ 47.00	£ 33.84	€ 40,89	¥ 374.59	0.6
NE10A	\$ 47.00	£ 33.84	€ 40,89	¥ 374.59	1.0
NE13A	\$ 47.00	£ 33.84	€ 40,89	¥ 374.59	1.3
NE20A	\$ 47.00	£ 33.84	€ 40,89	¥ 374.59	2.0
NE30A	\$ 47.00	£ 33.84	€ 40,89	¥ 374.59	3.0
NE40A	\$ 47.00	£ 33.84	€ 40,89	¥ 374.59	4.0
NE50A	\$ 47.00	£ 33.84	€ 40,89	¥ 374.59	5.0
NE60A	\$ 47.00	£ 33.84	€ 40,89	¥ 374.59	6.0

*Optical Density specified at 633 nm

SM2-Mounted Ø50.8 mm Absorptive Neutral Density Filters

ITEM #	\$	£	€	RMB	OD*
NE2R01A	\$ 98.00	£ 70.56	€ 85,26	¥ 781.06	0.1
NE2R02A	\$ 98.00	£ 70.56	€ 85,26	¥ 781.06	0.2
NE2R03A	\$ 98.00	£ 70.56	€ 85,26	¥ 781.06	0.3
NE2R04A	\$ 98.00	£ 70.56	€ 85,26	¥ 781.06	0.4
NE2R05A	\$ 98.00	£ 70.56	€ 85,26	¥ 781.06	0.5
NE2R06A	\$ 98.00	£ 70.56	€ 85,26	¥ 781.06	0.6
NE2R10A	\$ 98.00	£ 70.56	€ 85,26	¥ 781.06	1.0
NE2R13A	\$ 98.00	£ 70.56	€ 85,26	¥ 781.06	1.3
NE2R20A	\$ 98.00	£ 70.56	€ 85,26	¥ 781.06	2.0
NE2R30A	\$ 98.00	£ 70.56	€ 85,26	¥ 781.06	3.0
NE2R40A	\$ 98.00	£ 70.56	€ 85,26	¥ 781.06	4.0
NE2R50A	\$ 98.00	£ 70.56	€ 85,26	¥ 781.06	5.0
NE2R60A	\$ 98.00	£ 70.56	€ 85,26	¥ 781.06	6.0

*Optical Density specified at 633 nm

