

# FILTERS

## Choose the Right Filter for Your Application

### EO ADVANTAGE:

- Over 3,500 Filters In Stock and Available Now
- Designs Optimized for the Most Demanding Applications
- Downloadable Coating Curves for all TECHSPEC® Filters



### BANDPASS FILTERS

Bandpass Filters selectively transmit a portion of the spectrum, while rejecting all other wavelengths. Our Bandpass Interference Filters are available in a variety of bandwidth options.

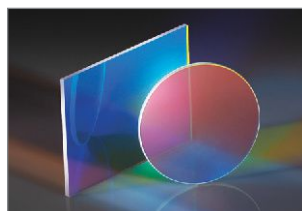
TECHSPEC® BANDPASS INTERFERENCE FILTERS			
	Center Wavelength Range	Optical Densities	Size Range
Fluorescence Bandpass Filters	340 - 832nm	≥6	12.5 - 50mm
Hard Coated Bandpass Filters	250nm - 2μm	≥4	12.5 - 50mm
Traditional Coated Bandpass Filters	193nm - 10.6μm	≥3, ≥4	12.5 - 50mm
Laser Line Clean-Up Filters	325 - 1064nm	≥6	12.5 - 25mm
Multi-Bandpass Filters	432 - 700nm	≥6	12.5 - 50mm



### NOTCH FILTERS

Notch Filters selectively reject a portion of the spectrum, while transmitting all other wavelengths. Featuring dielectric coatings to reflect the laser wavelength, Notch Filters are available with different levels of blocking and transmission ranges.

TECHSPEC® NOTCH FILTERS			
	Center Wavelength Range	Optical Densities	Size Range
Standard Notch Filters	355 - 1064nm	≥4, ≥6	12.5 - 50mm
Multi-Line Nd:YAG Notch Filters	355 - 1064nm	≥6	12.5 - 50mm



### EDGE AND DICHROIC FILTERS

Longpass Filters transmit wavelengths greater than the cut-on wavelength, while Shortpass Filters transmit wavelengths shorter than the cut-off wavelength. Dichroic Filters perform the same function, while guaranteeing that the rejected wavelengths are reflected.

TECHSPEC® EDGE AND DICHROIC FILTERS			
	Cut-On/Off Wavelength Range	Optical Densities	Size Range
High Performance Fluorescence Dichroic Filters	409 - 850nm	N/A	12.5 - 35.6mm
Longpass Filters	266nm - 7.3μm	≥2, ≥4	12.5 - 50mm
Shortpass Filters	400 - 1600nm	≥2, ≥4	12.5 - 50mm
Fluorescence Dichroic Filters	403 - 801nm	N/A	12.5 - 35.6mm
Dichroic Filters	400 - 1200nm	N/A	12.5 - 50mm
Variable Edge Filters	300 - 845nm	≥4	15 - 60mm
Hot and Cold Mirrors	N/A	N/A	12.5 - 127mm
Color Glass Longpass Filters	285 - 1000nm	N/A	12.5 - 50mm
Mounted Edge Filters	400 - 1100nm	≥2	M22.5 x 0.5 - M77.0 x 0.75



### NEUTRAL DENSITY FILTERS

Neutral Density (ND) Filters are designed to reduce transmission evenly across a portion of the spectrum. They can be designed for any portion of the UV, VIS or IR spectrum, and are commonly used to prevent over exposure of cameras and other detectors.

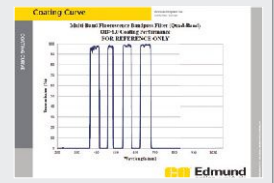
TECHSPEC® NEUTRAL DENSITY (ND) FILTERS			
	Wavelength Range	Optical Densities	Size Range
Reflective ND Filters	UV, VIS, NIR, and IR	0.1 - 5.0	12.5 - 50mm
Absorptive ND Filters	VIS	0.1 - 4.0	12.5 - 50x50mm
Non-Reflective ND Filters	VIS and NIR	0.3 - 3.0	12.5 - 25mm
ND Filter Film	VIS	0.1 - 4.0	12.5 - 100x300mm
Circular and Linear Variable ND Filters	VIS	0.04 - 4.0	25 - 100mm
Mounted ND Filters	VIS and NIR	0.1 - 3.0	M22.5 x 0.5 - M77.0 x 0.75

Visit [www.edmundoptics.com/filters](http://www.edmundoptics.com/filters) to browse the entire selection of filters

# BANDPASS Filters

## Narrow Band to Wide Band Filters Available

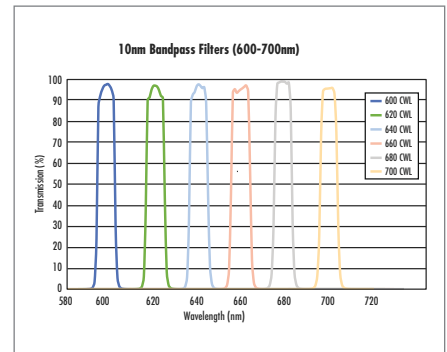
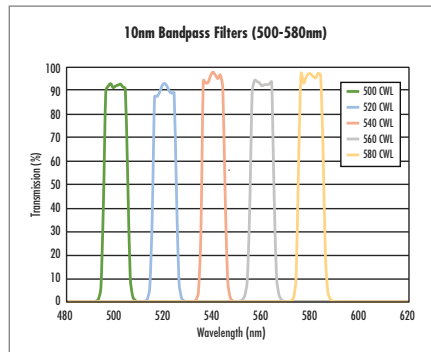
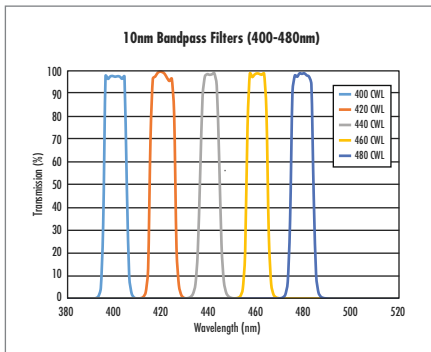
Download free online filter curves for all TECHSPEC® Filters at [www.edmundoptics.com/filters](http://www.edmundoptics.com/filters)



TECHSPEC® 25mm HARD COATED OD 4 BANDPASS FILTERS					
Center Wavelength CWL (nm)	Blocking Range (nm)	Full Width Half Max FWHM (nm)			Price
		10	25	50	
400	200 - 1200	#65-132	#86-652	#84-781	\$205.00
450	200 - 1200	#65-140	#86-653	#84-782	\$205.00
500	200 - 1200	#65-149	#86-654	#84-783	\$205.00
550	200 - 1200	#65-159	#86-655	#84-784	\$205.00
600	200 - 1200	#65-163	#86-656	#84-785	\$205.00
650	200 - 1200	#65-170	#86-657	#84-786	\$205.00
700	200 - 1200	#88-012	#86-658	#84-787	\$205.00
750	200 - 1200	#88-013	#86-659	#84-788	\$205.00
800	200 - 1200	#65-179	#86-660	#84-789	\$205.00
850	200 - 1200	#86-090	#86-661	#84-790	\$205.00

Volume Pricing Available

Over 450 OD 4 Bandpass Filters Available on Our Website in 10nm, 25nm, 50nm and Laser Line Designs.



Visit [www.edmundoptics.com/bandpass-filters](http://www.edmundoptics.com/bandpass-filters) to browse the entire selection of bandpass filters

# EDGE Filters

## Edge Filters for Spectral Sorting



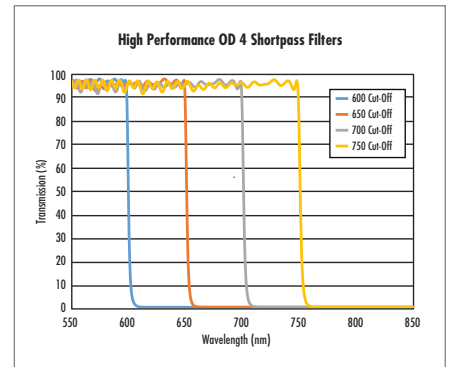
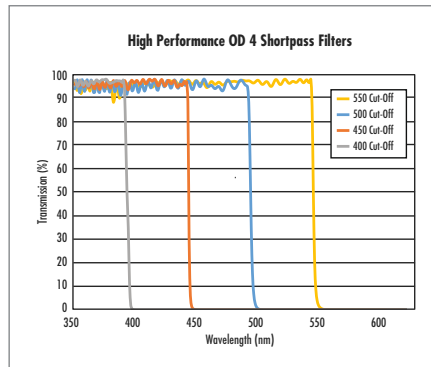
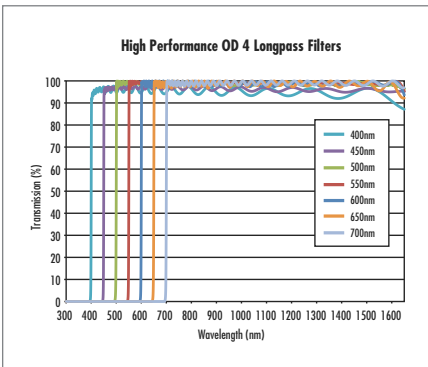
TECHSPEC® OD 4 LONGPASS FILTERS				
Cut-On Wavelength (nm)	Rejection Band (nm)	Transmission Band (nm)	25mm Diameter	Price
400	200 - 390	408 - 1650	#62-981	\$220.00
450	200 - 440	458 - 1650	#62-982	\$220.00
500	200 - 490	508 - 1650	#62-983	\$220.00
550	200 - 539	560 - 1650	#62-984	\$220.00
600	200 - 588	610 - 1650	#62-985	\$220.00
650	200 - 637	660 - 1650	#62-986	\$220.00
700	200 - 686	710 - 1650	#62-987	\$220.00
750	200 - 735	765 - 1650	#66-234	\$220.00
800	200 - 785	815 - 1650	#66-235	\$220.00
850	200 - 835	865 - 1650	#66-236	\$220.00
900	200 - 880	915 - 1650	#66-237	\$220.00
950	200 - 930	965 - 1650	#66-238	\$220.00
1000	200 - 980	1020 - 1650	#66-239	\$235.00

Volume Pricing Available

Visit our website for our complete selection of **OD 2 and OD 4 Edge Filter Designs** Available Off-the-Shelf in **12.5mm, 25mm, and 50mm Diameters**

TECHSPEC® OD 4 SHORTPASS FILTERS				
Cut-Off Wavelength (nm)	Transmission Band (nm)	Rejection Band (nm)	25mm Diameter	Price
400	300 - 392	410 - 610	#84-702	\$220.00
450	300 - 441	460 - 660	#84-704	\$220.00
500	300 - 490	512 - 715	#84-706	\$220.00
550	350 - 539	562 - 825	#84-708	\$220.00
600	350 - 587	614 - 900	#84-710	\$220.00
650	350 - 636	665 - 960	#84-712	\$220.00
700	400 - 685	715 - 1050	#84-714	\$220.00
750	400 - 740	775 - 1125	#64-332	\$220.00
800	400 - 790	825 - 1190	#64-333	\$220.00
850	400 - 840	880 - 1190	#64-334	\$220.00
900	425 - 890	930 - 1250	#64-335	\$220.00
950	450 - 939	980 - 1325	#64-336	\$220.00
1000	465 - 988	1035 - 1400	#64-337	\$235.00

Volume Pricing Available



Visit [www.edmundoptics.com/filters](http://www.edmundoptics.com/filters) to browse the entire selection of filters

## Notch Filters for Laser Rejection

TECHSPEC® OD 4 NOTCH FILTERS				
Center Wavelength (nm)	Full Width Half Maximum (nm)	Transmission Range (nm)	12.5mm Diameter	Price
355	17.8	325 - 475	#67-106	\$235.00
405	20.2	325 - 540	#67-107	\$235.00
488	24.4	365 - 650	#67-108	\$235.00
514.5	25.7	385 - 685	#67-109	\$235.00
532	26.6	400 - 700	#67-110	\$235.00
632.8	31.6	475 - 845	#67-111	\$235.00
785	39.2	585 - 1045	#67-112	\$235.00
808	40.0	600 - 1070	#86-700	\$235.00
830	42.0	625 - 1100	#86-701	\$235.00
980	49.0	735 - 1300	#67-113	\$235.00
1030	51.5	800 - 1400	#39-383	\$235.00
1064	53.2	800 - 1400	#67-114	\$235.00

Volume Pricing Available



TECHSPEC® OD 6 NOTCH FILTERS				
Center Wavelength (nm)	Full Width Half Maximum (nm)	Transmission Range (nm)	12.5mm Diameter	Price
355	26	280 - 700	#39-386	\$435.00
405	9	350 - 1200	#86-119	\$435.00
532	17	350 - 1200	#86-120	\$435.00
632.8	25	350 - 1200	#86-121	\$435.00
785	39	350 - 1200	#86-122	\$435.00
1064	73	400 - 1200	#86-123	\$435.00

Volume Pricing Available



Visit [www.edmundoptics.com/filters](http://www.edmundoptics.com/filters) to view our entire selection of filters



Infrared (IR) Bandpass Filters



Ultra-Thin Notch Filters



Hot Mirrors



Ultra Narrow Bandpass Filters

# NEUTRAL DENSITY Filters

## Understanding Neutral Density Filters

Neutral Density (ND) filters are designed to reduce transmission evenly across a portion of a specific spectrum. ND filters are typically defined by their Optical Density (OD) which describes the amount of energy blocked by the filter. A high optical density value indicates very low transmission, and low optical density indicates high transmission.

$$T (\%) = 10^{-OD} \times 100$$

$$OD = -\log \left[ \frac{T}{100} \right]$$

ND filters can be stacked to achieve a custom optical density. To calculate the final system OD, simply add the OD of each filter together.

**Example 1:** What is the transmission if OD 0.3 and OD 1.5 filters are stacked?

$$OD_{total} = 0.3 + 1.5 = 1.8$$

$$T = 10^{-1.8} \times 100 = 1.58\%$$

**Example 2:** How can I build a filter with 0.5% Transmission?

$$OD = -\log (0.5\%/100) = -\log(0.005) = 2.3$$

OD<sub>total</sub> of 2.3 could be created by stacking  
OD 0.3 + OD 2.0 or OD 1.0 + OD 1.3.



### Neutral Density Filter Types

There are two types of ND filters: reflective and absorptive. Reflective ND filters consist of thin film optical coatings, typically metallic, that have been applied to a glass substrate. The coating can be optimized for specific wavelength ranges such as UV-VIS or NIR. The thin film coating primarily reflects light back toward the source. Special care should be taken to ensure the reflected light does not interfere with the system setup. Absorptive ND filters utilize a glass substrate to absorb light by a specific percentage.



### EO ADVANTAGE:

- Spectrally Flat Transmission Profile
- UV, VIS, NIR Versions Available
- Over 380 Filters to Choose From

### TECHSPEC® REFLECTIVE NEUTRAL DENSITY FILTERS

Optical Density	Diameter (mm)	Transmission	Absorptive	Price	UV-VIS	Price	UV-NIR	Price	VIS	Price	NIR	Price
0.3	25	50.0%	#46-212	\$37.50	#47-205	\$99.50	#88-270	\$140.00	#63-386	\$115.00	#47-528	\$95.00
0.5	25	32.0%	#48-089	\$37.50	#47-206	\$99.50	#88-271	\$140.00	#63-387	\$115.00	#47-529	\$95.00
1.0	25	10.0%	#48-090	\$37.50	#47-207	\$99.50	#88-272	\$140.00	#63-390	\$115.00	#47-530	\$95.00
1.3	25	5.0%	#63-463	\$37.50	#47-208	\$99.50	#88-273	\$140.00	#63-391	\$115.00	#47-531	\$95.00
1.5	25	3.2%	#48-091	\$37.50	#47-209	\$99.50	#88-274	\$140.00	#63-392	\$115.00	#47-532	\$95.00
2.0	25	1.0%	#48-092	\$37.50	#47-210	\$99.50	#88-275	\$140.00	#63-393	\$115.00	#47-533	\$95.00

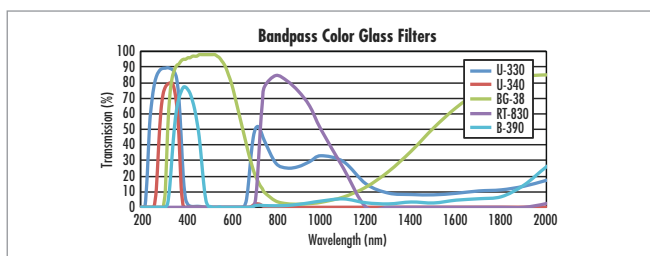


# COLORED GLASS Filters

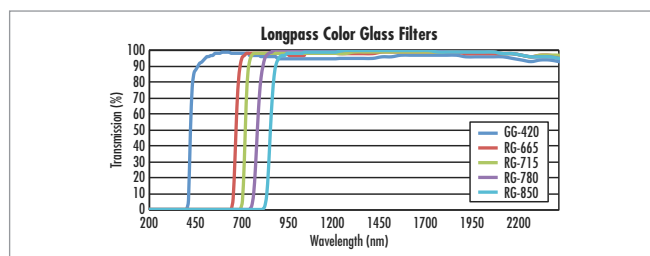
## Wide Variety of Hoya and Schott Filter Glass

### EO ADVANTAGE:

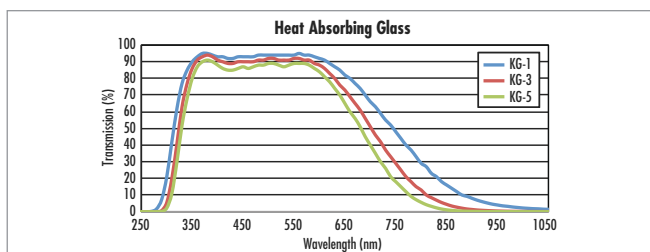
- Over 70 Substrates Available Off-The-Shelf
- Custom Sizes Available
- UV, VIS, and IR Ranges



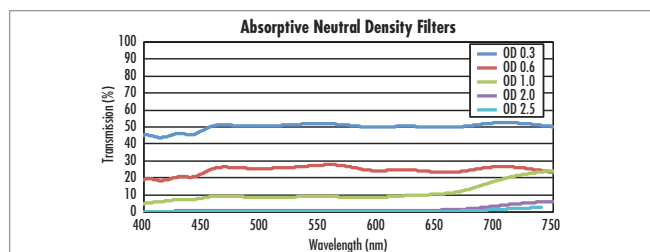
BANDPASS COLOR GLASS FILTERS							Volume Pricing Available
Glass No.	Range	Glass Manufacturer	Center λ (nm)	Thickness	1" Diameter	Price	
U-330	UV	Hoya	330	2.5	#46-437	\$61.50	
U-340	UV	Hoya	340	2.5	#46-439	\$61.50	
B-390	UV-VIS	Hoya	390	2.5	#48-635	\$47.50	
BG-38	VIS	Schott	470	3.0	#46-433	\$34.50	
RT-830	IR	Hoya	830	2.5	#46-443	\$47.50	



LONGPASS COLOR GLASS FILTERS							Volume Pricing Available
Glass No.	Range	Glass Manufacturer	Cut-On λ (nm)	Thickness	1" Diameter	Price	
GG-420	VIS	Schott	420	3.0	#46-426	\$32.50	
RG-665	VIS	Schott	665	3.0	#45-070	\$32.50	
RG-715	IR	Schott	715	3.0	#46-065	\$32.50	
RG-780	IR	Schott	780	3.0	#32-757	\$32.50	
RG-850	IR	Schott	850	3.0	#32-759	\$32.50	



HEAT ABSORBING GLASS							Volume Pricing Available
Glass No.	Range	Glass Manufacturer	Thickness	25mm Diameter	Price		
KG-1	VIS	Schott	3.0	#45-646	\$29.50		
KG-3	VIS	Schott	3.0	#49-088	\$35.00		
KG-5	VIS	Schott	3.0	#49-093	\$40.00		



ABSORPTIVE NEUTRAL DENSITY FILTERS							Volume Pricing Available
Optical Density	Transmission (%)	Glass No.	Thickness	Glass Manufacturer	25mm Diameter	Price	
0.3	50	ND-50	2.5	Hoya	#46-212	\$37.50	
0.6	25	ND-25	2.5	Hoya	#46-214	\$37.50	
1.0	10	ND-0.3	1.0	Hoya	#48-090	\$37.50	
2.0	1	ND-0.3	2.0	Hoya	#48-092	\$37.50	
2.5	0.3	ND-0.3	2.5	Hoya	#46-216	\$37.50	

Visit [www.edmundoptics.com/filters](http://www.edmundoptics.com/filters) to browse the entire selection of color glass filters