

MIDOPT

MIDWEST OPTICAL SYSTEMS, INC.

WHERE IMAGE QUALITY BEGINS



PRODUCT GUIDE



WWW.MIDOPT.COM

> BANDPASS FILTERS

The Quickest and Most Cost Effective Way to Improve Image Contrast and System Reliability

Bandpass filters transmit a specific portion of the spectrum while blocking shorter and longer wavelengths. The resulting increase in signal-to-noise ratio improves contrast and insures control of changes that may occur in ambient lighting conditions. Broad bandwidth, angular insensitivity and rugged designs allow MidOpt Bandpass filters to be used with very wide angle lenses regardless of the varying spectral output of LED and laser diode lighting.

FEATURES

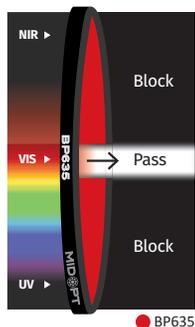
- Enhanced contrast for viewing of desired features
- Designed for compatibility with all commonly used LED and laser diode wavelengths and UV excited fluorescence emissions
- Shields systems from unwanted ambient light
- Limits the loss of resolution associated with chromatic aberrations
- Aids in increased LED light stability and longevity by facilitating operation at reduced power levels
- Essential for successful imaging in the UV and Near-IR. Visible light must be blocked to maximize contrast in these situations.
- Surface Quality: 40/20

MOUNT & SIZE OPTIONS

- Threaded Mount, C/CS Mount, Slip Mount, Unmounted
- BP and BN Series Threaded Mount sizes: M13.25-M105; Bi Series: M13.25-M82
- Custom shapes and sizes available

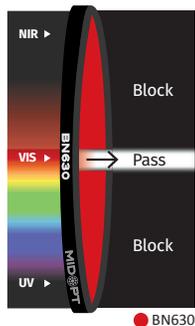
BP SERIES

Control what the camera detects, ideal for LED or laser diode use



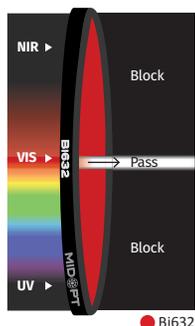
BN SERIES

For LED or laser diode use or situations involving overwhelming ambient light



Bi SERIES

For laser diode or other narrow spectrum light source applications

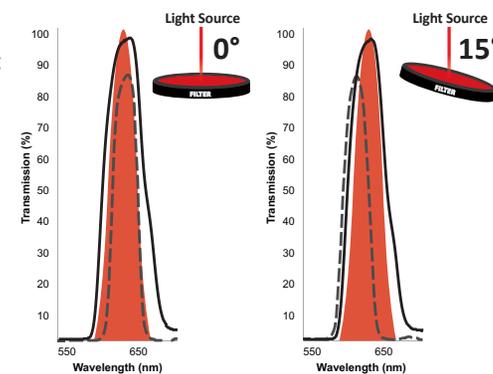


Part #	Description	Useful Range	FWHM (nominal)	Peak Transmission
BP SERIES — BROAD BANDWIDTH				
BP250	Deep-to-Near UV Bandpass	230-275nm	70nm	≥30%
BP324	Near-UV Bandpass	290-365nm	105nm	≥90%
BP365	Near-UV Bandpass	335-400nm	80nm	≥85%
BP470	Blue Bandpass	425-495nm	85nm	≥90%
BP500	Green-Blue Bandpass	440-555nm	248nm	≥85%
BP505	Cyan Bandpass	485-550nm	90nm	≥90%
BP525	Light Green Bandpass	500-555nm	80nm	≥90%
PE530	Photopic Response Filter	495-565nm	120nm	≥70%
BP550	Near-IR/UV-Block Visible Bandpass	410-690nm	300nm	≥90%
BP590	Orange Bandpass	560-600nm	70nm	≥90%
BP635	Light Red Bandpass	615-645nm	60nm	≥90%
BP660	Dark Red Bandpass	640-680nm	65nm	≥90%
BP695	Near-IR Bandpass	680-720nm	65nm	≥90%
BP735	Near-IR Bandpass	715-780nm	90nm	≥90%
BP800	Near-IR Bandpass	745-950nm	315nm	≥90%
BP850	Near-IR Bandpass	820-910nm	160nm	≥90%
BP880	Near-IR Bandpass	845-930nm	130nm	≥90%
BN SERIES — NARROW BANDWIDTH				
BN470	Narrow Blue Bandpass	460-490nm	45nm	≥85%
BN532	Narrow Green Bandpass	525-550nm	55nm	≥85%
BN595	Narrow Orange Bandpass	580-610nm	45nm	≥85%
BN630	Narrow Light Red Bandpass	625-645nm	45nm	≥85%
BN650	Narrow Red Bandpass	638-672nm	50nm	≥85%
BN660	Narrow Dark Red Bandpass	645-675nm	45nm	≥85%
BN740	Narrow Near-IR Bandpass	730-755nm	50nm	≥85%
BN785	Narrow Near-IR Bandpass	770-790nm	45nm	≥85%
BN810	Narrow Near-IR Bandpass	798-820nm	50nm	≥85%
BN850	Narrow Near-IR Bandpass	840-865nm	45nm	≥85%
BN880	Narrow Near-IR Bandpass	855-890nm	45nm	≥85%
BN940	Narrow Near-IR Bandpass	928-955nm	55nm	≥90%
Bi SERIES — NARROW INTERFERENCE BANDWIDTH				
Bi405	Violet Interference Bandpass	390-410nm	35nm	≥85%
Bi550	Green Interference Bandpass	535-558nm	33nm	≥88%
Bi632	Light Red Interference Bandpass	625-640nm	28nm	≥88%
Bi650	Red Interference Bandpass	643-665nm	30nm	≥85%
Bi660	Dark Red Interference Bandpass	650-665nm	28nm	≥88%
Bi808	Near-IR Interference Bandpass	798-820nm	35nm	≥85%
Bi850	Near-IR Interference Bandpass	845-860nm	33nm	≥88%

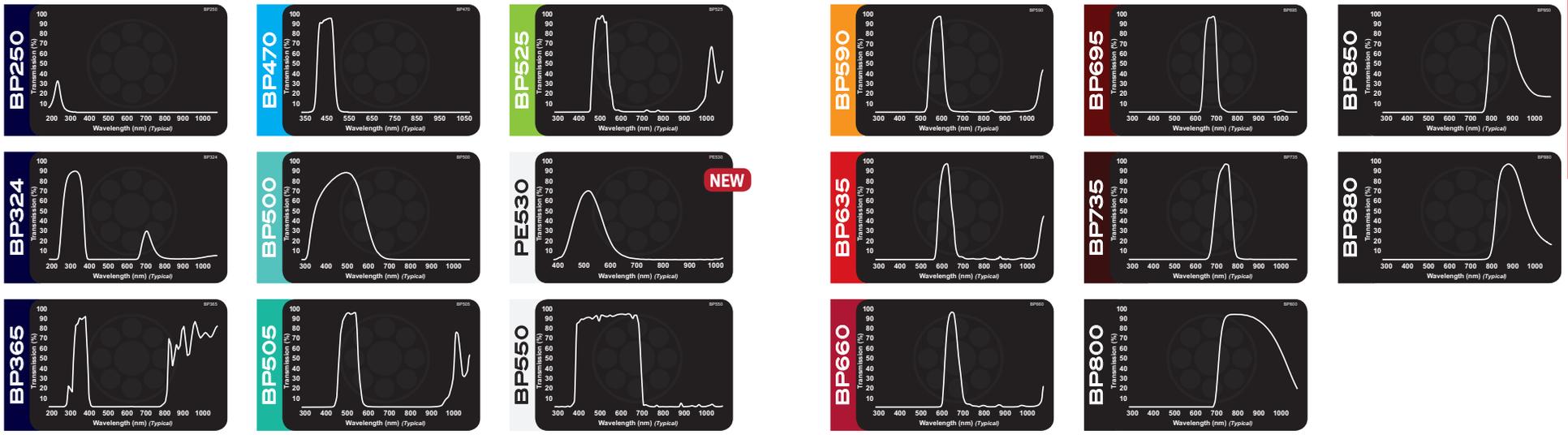
Due to continuous product improvement, specifications are subject to change without notice.

MidOpt BP and BN Series Filters are Less Susceptible to Blue Shifting

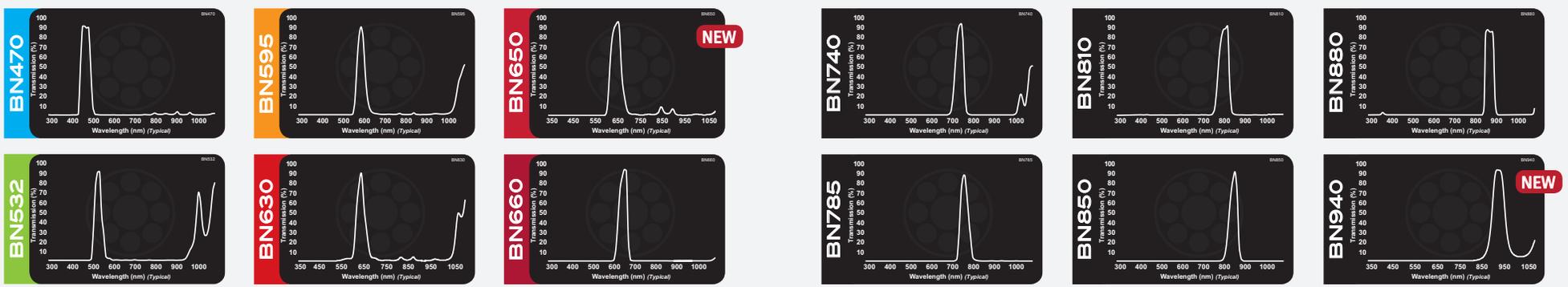
Traditional bandpass filter designs are highly sensitive to the angle at which all light strikes the filter and usually do not perform as well at wider angles or at shallower angles of incidence. Due to a unique hybrid filter design, MidOpt filters exhibit reduced angular dependency.



BP SERIES Broad Bandwidth



BN SERIES Narrow Bandwidth



NEW Bi SERIES Narrow Interference Bandwidth



The performance of a filter is based on what happens to light passing through the filter. The apparent color of light reflected off the surface is not a reliable way to judge the filter's capabilities. Batch-to-batch difference in the apparent color of the coatings or filter substrates can often be easily seen when looking at two examples of the same filter type. The color of the coating does not indicate a disparity in performance.

> DUAL BANDPASS FILTERS

Works Twice as Hard. Two Bandwidths, One Filter.

Eliminate the Need for Two Cameras or a Filter Switching Mechanism

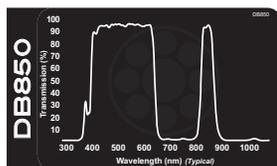
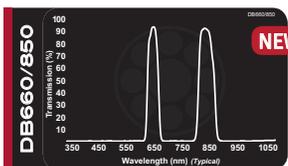
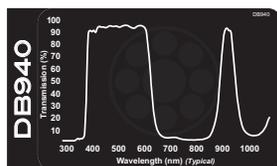
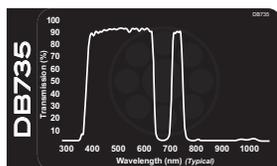
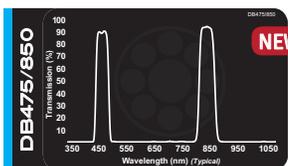
Dual Bandpass Filters are ideal for applications that use a color camera, allowing for accurate color imaging during the day and infrared imaging at night. These filters pass visible light and a specific IR band commensurate with the IR illumination frequency used at night.

FEATURES

- Pass visible light and a specific narrow IR band
- Achieve natural color rendition by blocking interfering wavelengths
- Allow viewing of a scene with appropriately matched IR illumination at night
- Surface Quality: 40/20

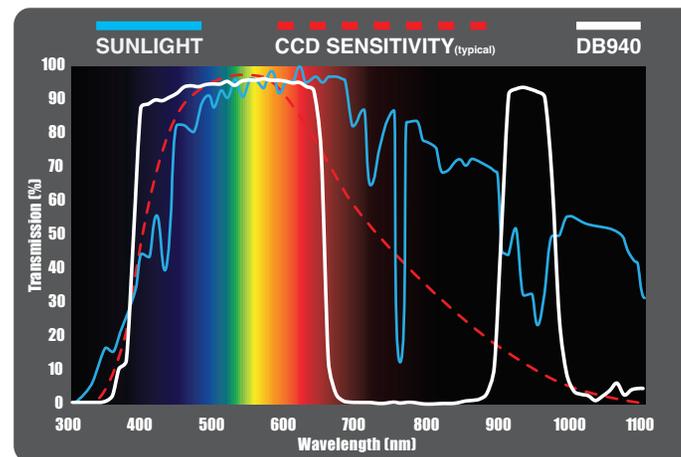
MOUNT & SIZE OPTIONS

- Threaded Mount sizes: M13.25-M82, C/CS Mount, Slip Mount, Unmounted
- Custom shapes and sizes available

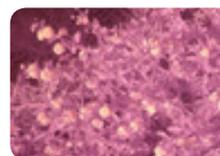


ACHIEVE ACCURATE COLOR RENDITION IN THE DAYLIGHT

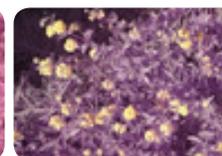
Using a DB940 filter, commensurate IR lighting produces virtually no visible signature while daytime color rendition is uncompromised.



Sunlight contains an almost overwhelming amount of infrared light, however output in the region around 940nm is not as significant. Using a DB940 (Visible/940nm) filter takes advantage of this phenomena, resulting in greatly improved color rendition compared to Visible/850nm dual band filters.



No IR Blocking Filter



DB850 Dual Bandpass Filter



DB940 Dual Bandpass Filter

Part #	Description	Useful Range	FWHM (nominal)	Peak Transmission
DB SERIES — DUAL BANDWIDTH				
● DB475/850	Dual Bandpass Blue + 850 NIR	VIS 460-490nm NIR 830-870nm	45nm, 55nm	≥90%
● DB660/850	Dual Bandpass Red + 850 NIR	VIS 645-675nm NIR 830-870nm	40nm, 50nm	≥90%
● DB735	Dual Bandpass Visible + 735nm NIR	VIS 405-645nm NIR 725-755nm	250nm, 50nm	≥90%
● DB850	Dual Bandpass Visible + 850nm NIR	VIS 405-645nm NIR 835-875nm	250nm, 50nm	≥90%
● DB940	Dual Bandpass Visible + 940nm NIR	VIS 405-650nm NIR 925-965nm	250nm, 60nm	≥90%

Due to continuous product improvement, specifications are subject to change without notice.



LONGPASS FILTERS

Block Shorter Wavelength Light While Passing Longer VIS and NIR Wavelengths

FEATURES

- Pass VIS/Near-IR wavelengths
- Transmits a very broad spectrum of light
- Surfaces provided with durable, high efficiency anti-reflection coatings in order to protect polished glass surfaces and increase light throughput
- Suited for wide angle applications
- Use with a Shortpass filter to create a custom Bandpass filter
- Surface Quality: 40/20

MOUNT & SIZE OPTIONS

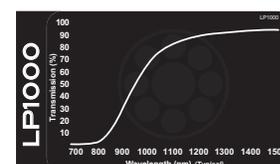
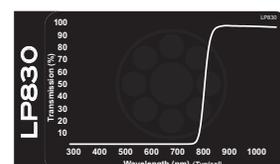
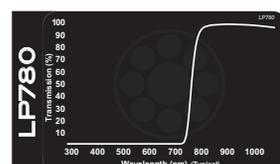
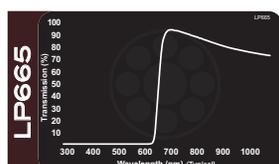
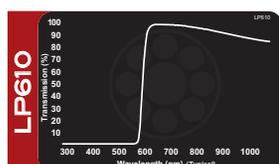
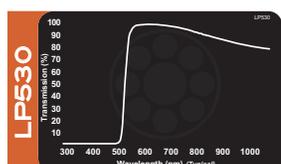
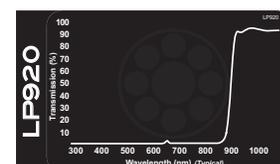
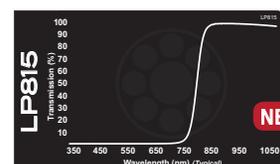
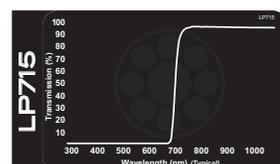
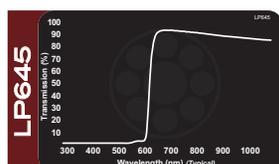
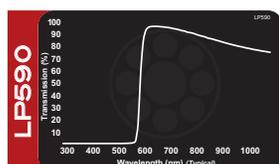
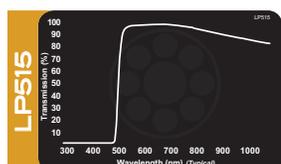
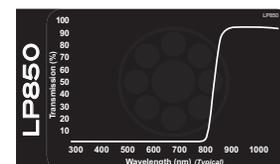
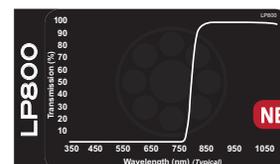
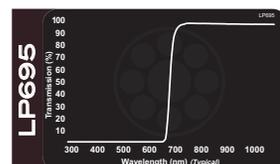
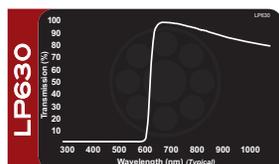
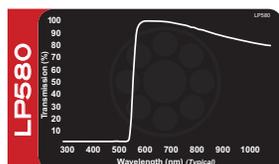
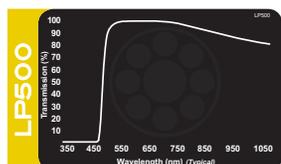
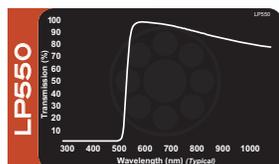
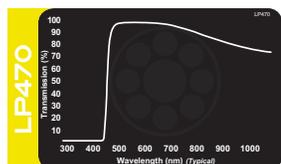
- Threaded Mount sizes: M13.25-M105, C/CS Mount, Slip Mount, Unmounted
- Custom shapes and sizes available



Part #	Description	Useful Range	Cut-on WL 50% T	Peak Transmission
LP SERIES — LONGPASS				
LP285*	High Transmission Heat Resistant VIS-NIR A/R Protective Window	350-1100nm	285nm	≥98%
LP330*	Protective Window	350-1100nm	330nm	≥90%
LP340*	A/R Protective Window	350-800nm	340nm	≥98%
LP390*	UV Absorbing Protective Window	410-1100nm	390nm	≥90%
LP415*	UV Block A/R Protective Window	415-1100nm	415nm	≥95%
LP470	Light Yellow Longpass	480-1100nm	470nm	≥90%
LP500	Yellow Longpass	510-1100nm	495nm	≥90%
LP515	Yellow-Orange Longpass	520-1100nm	515nm	≥90%
LP530	Orange Longpass	545-1100nm	530nm	≥90%
LP550	Orange Longpass	560-1100nm	550nm	≥90%
LP580	Red-Orange Longpass	585-1100nm	580nm	≥90%
LP590	Red Longpass	605-1100nm	590nm	≥90%
LP610	Red Longpass	620-1100nm	610nm	≥90%
LP630	Red Longpass	645-1100nm	630nm	≥90%
LP645	Dark Red Longpass	650-1100nm	645nm	≥90%
LP665	Dark Red Longpass	680-1100nm	665nm	≥90%
LP695	Near-IR Longpass	715-1100nm	695nm	≥90%
LP715	Near-IR Longpass	730-1100nm	715nm	≥90%
LP780	Near-IR Longpass	800-1100nm	780nm	≥90%
LP800	Near-IR Longpass	820-1100nm	800nm	≥90%
LP815	Near-IR Longpass	825-1100nm	815nm	≥95%
LP830	Near-IR Longpass	845-1100nm	830nm	≥90%
LP850	Near-IR Longpass	870-1100nm	850nm	≥90%
LP920	Near-IR Longpass	930-1100nm	920nm	≥90%
LP1000	Near-IR Longpass	1010-1500nm	1000nm	≥90%

*See page 16 for filter curves

Due to continuous product improvement, specifications are subject to change without notice.



SHORTPASS / NIR CUT FILTERS

Pass Shorter Wavelengths While Blocking Longer Wavelength Light

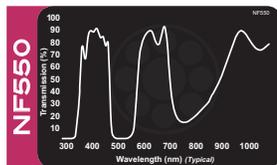
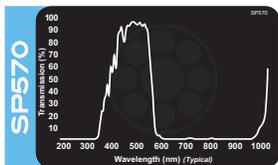
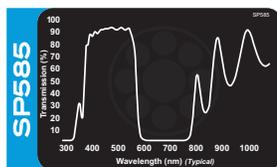
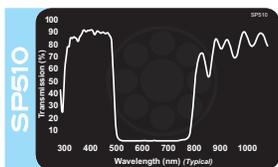
FEATURES

- Pass a broad spectrum of shorter wavelengths
- Can be used with Longpass filters to create a custom Bandpass filter
- Surface Quality: 40/20

MOUNT & SIZE OPTIONS

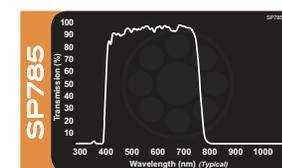
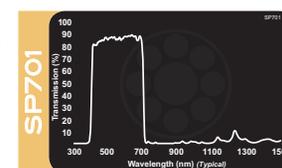
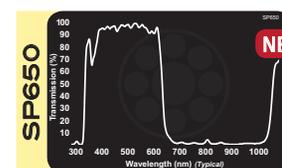
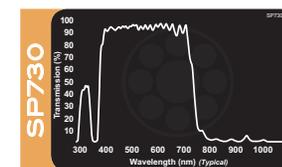
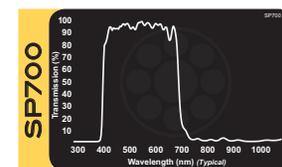
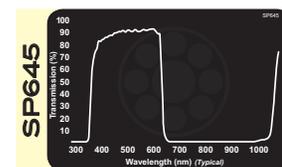
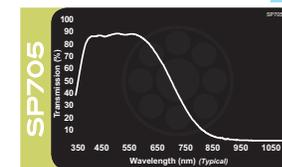
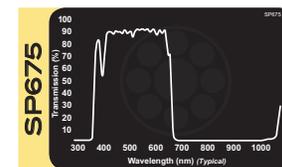
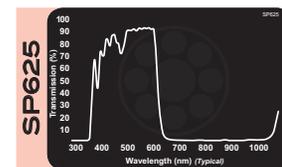
- Threaded Mount sizes: M13.25-M105, C/CS Mount, Slip Mount, Unmounted
- Custom shapes and sizes available

SP SERIES VIS Pass



SP SERIES NIR Block/VIS Pass

- Commonly placed over the camera's image sensor to block NIR light and to achieve natural color rendition
- Reduces IR radiation or camera bloom from hot metal or glass extrusion processes
- Use as a hot mirror to reduce unwanted heat caused by IR radiation



Part #	Description	Useful Range	Cut-off WL 50% T	Peak Transmission
SP SERIES — VIS PASS				
SP510	Blue Shortpass	340-500nm	510nm	≥90%
SP570	Blue-Green Shortpass	410-560nm	570nm	≥90%
SP585	Cyan Shortpass	395-575nm	585nm	≥90%
NF550	Magenta Dichroic (Green Block)	395-475nm, 605-700nm	480 / 590nm (cut-off / cut-on)	≥90%
SP SERIES — NEAR-IR BLOCK				
SP625	Blue-Orange Shortpass	425-620nm	625nm	≥90%
SP645	Near-IR/Mid-Red Dichroic Block	400-640nm	645nm	≥90%
SP650	Near-IR/Mid-Red Dichroic Block	400-640nm	650nm	≥90%
SP675	Near-IR/Deep Red Dichroic Block	420-660nm	675nm	≥90%
SP700	Near-IR/UV-Block Visible Shortpass	410-690nm	400 / 700nm (cut-on / cut-off)	≥90%
SP701	Extended Hot Mirror / Reflects up to 1550nm	410-690nm	400 / 705nm (cut-on / cut-off)	≥85%
SP705	Near-IR/Deep Red Absorp. Block	370-630nm	705nm	≥88%
SP730	Near-IR/Colorless Dichroic Block	400-710nm	730nm	≥90%
SP785	Modified Near-IR Dichroic Block	425-770nm	785nm	≥90%

Due to continuous product improvement, specifications are subject to change without notice.



› POLARIZING FILTERS & SHEET MATERIAL

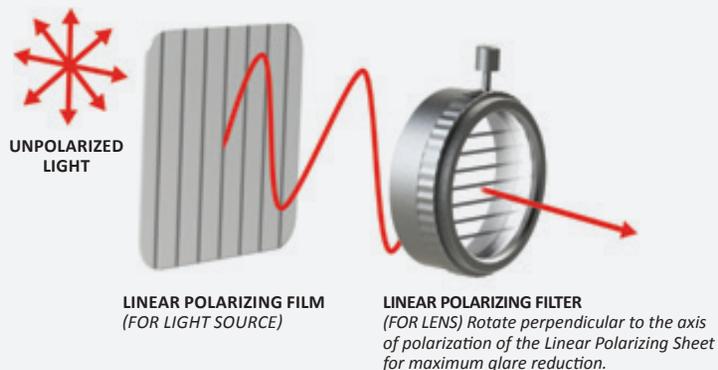
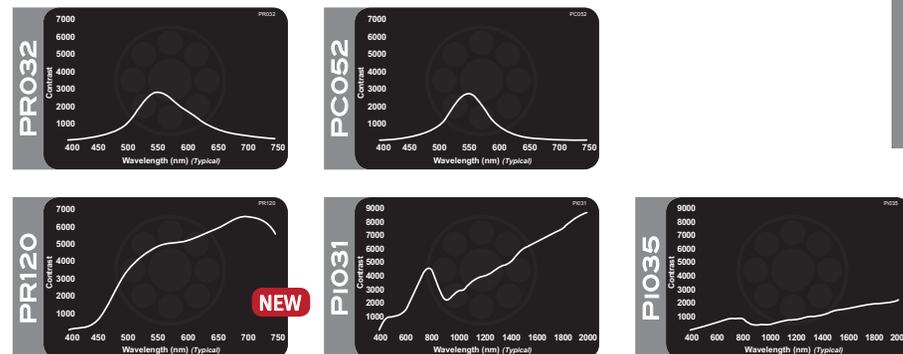
Reduce Unwanted Reflection or Specular Glare

FEATURES

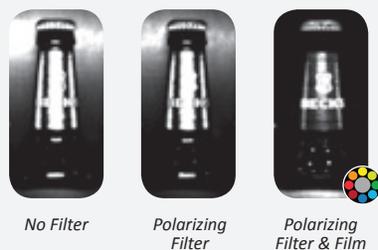
- Available in both Linear and Circular for imaging in the Visible and Near-IR
- Threaded filters are equipped with a rotating mount and locking thumb screw
- Use with Linear and Circular polarizing sheet material for maximum reduction in glare
- Filter Surface Quality: 40/20; (PR120: 80/50)

MOUNT & SIZE OPTIONS

- Polarizing Filters: Rotating Threaded Mount sizes: M22.5-M105, Slip Mount, Unmounted
- Polarizing Sheets: Custom cut to fit any lighting, maximum usable width 16.5"



Best results are achieved when polarizing film is used over the light source in conjunction with a polarizing filter over the camera lens.



Part #	Description	Useful Range	Contrast Ratio
POLARIZING FILTERS			
● PR032	Linear Polarizer	400-700nm	800:1
● PR120	Ultra High Contrast Linear Polarizer	400-700nm	6500:1
● PC052	Circular Polarizer	400-700nm	700:1
● PI031	NIR/Vis Linear Polarizer, High Extinction	400-2000nm	3000:1
● PI035	NIR/Vis Linear Polarizer, High Transmission	400-2000nm	500:1
POLARIZING SHEETS			
■ PS007	High Contrast Linear Polarizing Film .007" thk	400-700nm	800:1
■ PSA007	High Contrast Linear Polarizing Film .007" thk Self Adhesive	400-700nm	800:1
■ PS010	High Contrast Linear Polarizing Film .010" thk	400-700nm	3000:1
■ PS030	Ultra High Contrast Linear Polarizing Film .030" thk	400-700nm	6500:1
■ HT025	NEW High Temperature Linear Polarizing Film .025" thk	400-700nm	5000:1
■ PG120	NEW Ultra High Contrast Glass Linear Polarizing Sheet	400-700nm	6500:1
■ PI005	NIR High Contrast Linear Polarizing Film .007" thk	700-1100nm	1000:1

Circular Polarizing Sheets available in Left and Right-handed options
Due to continuous product improvement, specifications are subject to change without notice.



MOUNTED POLARIZING FILTERS (for Lens)
Equipped with a rotating mount and locking thumbscrew to maintain orientation when cleaned or exposed to shock or vibration



POLARIZING SHEETS (for Light Source)
Can be cut to fit almost any type of lighting equipment

› NEUTRAL DENSITY FILTERS

Reduce Light Intensity

ND Series – VIS, Absorptive

- Reduce light intensity in the visible spectrum without affecting color and contrast
- Use with monochrome or color cameras when imaging in the visible (VIS) spectrum
- Eliminate over-saturated images
- Surface Quality: 40/20

Ni Series – VIS/NIR, Low Reflectivity

- Reduce light intensity neutrally throughout the VIS and NIR spectrums
- Use with monochrome or color cameras, or can be placed over bright light sources to aid in thermal load reduction
- Made with low-expansion, heat-resistant Borofloat® glass, Ni filters can be used to
- Superior parallelism and surface quality
- Surface Quality: 40/20

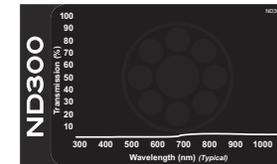
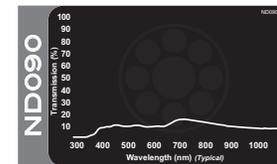
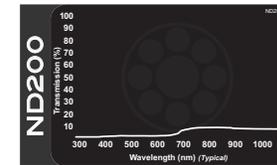
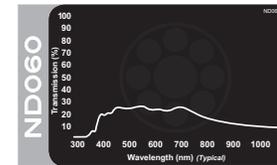
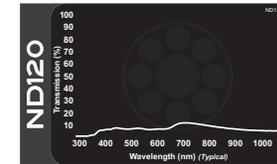
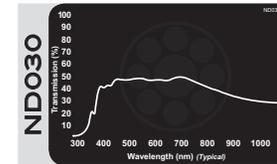
MOUNT & SIZE OPTIONS

- Threaded Mount sizes: M13.25-105, C/CS Mount, Slip Mount, Unmounted
- Custom shapes and sizes available
- Can be stacked with other Neutral Density filters to achieve various optical densities
- *Custom densities available upon request

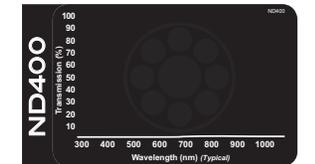
Part #	Description	Useful Range	Optical Density
ND SERIES — VIS			
ND030	Absorptive 50% Transmission	425-675nm	0.3
ND060	Absorptive 25% Transmission	425-675nm	0.6
ND090	Absorptive 12.5% Transmission	425-675nm	0.9
ND120	Absorptive 6.25% Transmission	425-675nm	1.2
ND200	Absorptive 1.0% Transmission	425-675nm	2.0
ND300	Absorptive 0.1% Transmission	425-675nm	3.0
ND400	Absorptive 0.01% Transmission	425-675nm	4.0
Ni SERIES — VIS/NIR			
Ni030	Low Reflectivity 50% Transmission	400-1100nm	0.3
Ni060	Low Reflectivity 25% Transmission	400-1100nm	0.6
Ni090	Low Reflectivity 12.5% Transmission	400-1100nm	0.9
Ni120	Low Reflectivity 6.25% Transmission	400-1100nm	1.2

Due to continuous product improvement, specifications are subject to change without notice.

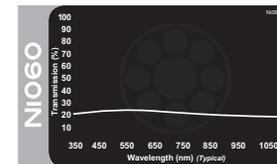
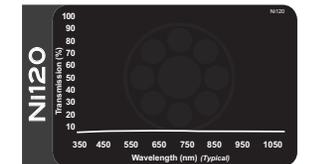
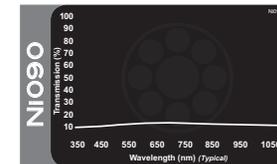
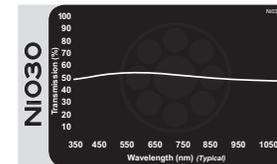
ND SERIES VIS Absorptive



Sunglasses for Your System



Ni SERIES VIS/NIR Low Reflectivity



PROTECTIVE FILTERS

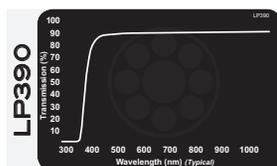
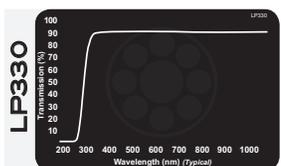
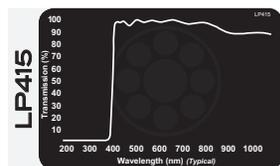
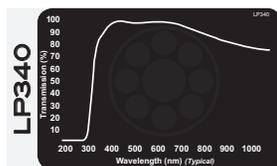
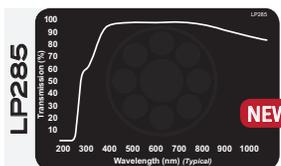
Shield Lenses and Lighting from Impact, Dust and Harsh Environments.

LP SERIES Lens Protection

- Glass substrates with tight control of parallelism and cosmetic surface quality
- Block UV while passing visible and near-IR wavelengths
- Spectrally neutral within the designated passband
- High efficiency anti-reflection coatings are standard on LP285, LP340 and LP415 filters to maximize transmission
- Surface Quality: 40/20

MOUNT & SIZE OPTIONS

- Threaded Mount sizes: M13.25-M105, C/CS Mount, Slip Mount, Unmounted



AC SERIES Acrylic Longpass

Durable, Lightweight and Economical Solution for Inspection Windows.

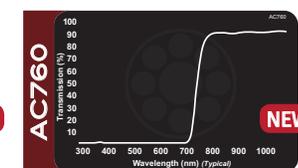
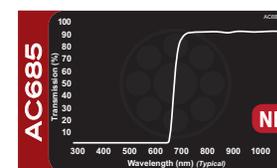
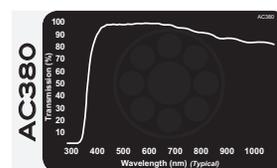
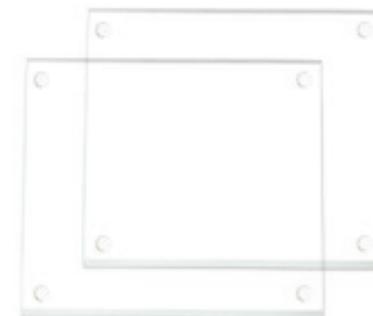
- Acrylic material has up to 10X the breakage resistance of glass
- Suitable for FDA-type applications
- Can be sold in larger sheets up to 900mm sq. Standard thickness is 2.0mm
- AC380 surfaces feature vacuum sputtered coatings; (1) high-efficiency anti-reflection coatings (T>99+% per surface) and (2) scratch- and solvent-resistant coatings that are impenetrable to solvents such as acetone, MEK and severe abrasion
- All types block UV radiation
- AC380 surface quality: 40/20; AC685 and AC760: 80/50

MOUNT & SIZE OPTIONS

- Can be precision laser-cut in house to any desired size or configuration for next day delivery
- Available in Threaded Mount sizes: M13.25-M105; Slip Mount



Custom cut to match equipment requirements



Part #	Description	Useful Range	Cut-on WL 50% T	Peak Transmission
LP SERIES – LENS PROTECTION				
LP285	High Transmission Heat Resistant VIS-NIR A/R Protective Window	350-1100nm	285nm	≥98%
LP330	Protective Window	350-1100nm	330nm	≥90%
LP340	A/R Protective Window	350-800nm	340nm	≥98%
LP390	UV Absorbing Protective Window	410-1100nm	390nm	≥90%
LP415	UV-Block A/R Protective Window	415-1100nm	415nm	≥95%

Due to continuous product improvement, specifications are subject to change without notice.

For economical lens protection, see AC380 on page 17

Part #	Description	Useful Range	Cut-on WL 50% T	Peak Transmission
AC SERIES – ACRYLIC LONGPASS				
AC380	A/R Acrylic Protective Window	450-850nm	380nm	≥95%
AC685	Acrylic Near-IR Longpass	710-1100nm	685nm	≥90%
AC760	Acrylic Near-IR Longpass	780-1100nm	760nm	≥90%

Due to continuous product improvement, specifications are subject to change without notice.

› LIGHT BALANCING FILTERS

Mount Over Your Color Camera's Lens to Achieve Natural Color Rendition

FEATURES

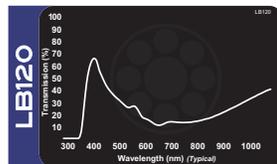
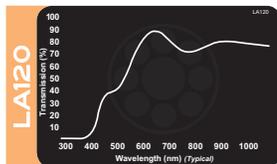
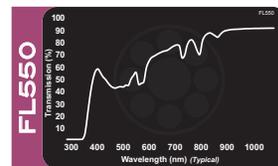
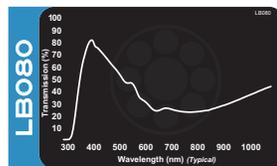
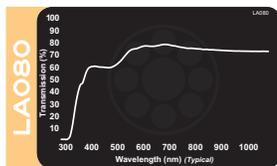
- Used to modify the color temperature or balance when LED, fluorescent, sodium, halogen, metal halide, tungsten or other white lighting is being utilized in the area
- LA series (amber) filters reduce blue shading (“warm” the scene) that often strongly predominates with some types of white LED and xenon strobe lighting
- LB series (blue) filters subdue the reddish hue found with some tungsten, halogen, sodium and other light sources
- FL series filters used to reduce the greenish cast created by fluorescent lighting
- Surface Quality: 40/20

MOUNT & SIZE OPTIONS

- Threaded Mount sizes: M13.25-M105, Slip Mount, Unmounted
- Custom shapes and sizes available

Part #	Description	Useful Range	Mired Shift Value
LA080	Light Balancing (Minus Blue)	400-700nm	+80
LA120	Light Balancing (Minus Blue)	400-700nm	+120
LB080	Light Balancing (Minus Red)	400-700nm	-80
LB120	Light Balancing (Minus Red)	400-700nm	-120
FL550	Light Balancing (Minus Green)	400-700nm	N/A

Due to continuous product improvement, specifications are subject to change without notice.



› CUSTOM OPTICS

MidOpt supplies custom, stock and modified-stock optical components for a variety of applications and end uses. Orders ranging in volume for one to tens of thousands of pieces can be accommodated.



Spherical Lenses



Cylindrical Lenses



Multi-Element Lenses



Windows & Dust Covers



Mirrors



Prisms



Wedges



Light Pipes



Diffusers



Mechanical Parts



Custom Filters



Beamsplitters



Test Glass Rental

MidOpt has more than 3,000 test glass radii in house, one of the largest inventories of test glasses in the world.

Transmission/Reflection	Thickness
50:50	0.5-3.0 mm
70:30	1.0-2.0 mm
30:70	1.0-2.0 mm
80:20	1.0-2.0 mm
20:80	1.0-2.0 mm

› FILTER TEST KITS

Evaluate and Improve Image Quality with MidOpt Filter Test Kits

- Solve applications quickly and instantly test the effects of color/wavelength
- Control the variability of ambient light
- Evaluate glare reduction
- Enhance contrast of objects or features of interest

MidOpt Bandpass Filters Emulate the Output of LED Illumination

Testing the effects of monochromatic LED illumination in a system is easily accomplished by using available white light and a MidOpt Filter Kit. When testing, each bandpass filter achieves a similar result as the matching LED wavelength would yield. This aids in determining the appropriate LED wavelength for the application.

Reduce Cost and Lead Time

Being equipped with a large variety of lighting options can be impractical and expensive. Testing with MidOpt filters offers significant savings in time and resources when working toward an optimal lighting solution. Once an appropriate wavelength range has been determined, a bandpass filter is then used to complement the chosen lighting and control potential interference from ambient light.

Quickly Solve Applications On-Site

No Mounting Required



FS100 Machine Vision Swatch Filter Kit

- BP324
- BP470
- BP505
- BP525
- BP550
- BP590
- BP635
- BP660
- BP850
- PR032
- BP635
- BP660
- BP850
- PR032



43mm size filters

NS100 Neutral Density Swatch Filter Kit

- ND030
- ND060
- ND090
- ND120
- ND200
- ND300
- ND400

43mm size filters



FK200-27 Machine Vision Filter Kit

Ten most popular UV, Visible and NIR machine vision filters. For lenses with M25.5, M27 and M30.5 threads.

- BP324-27
- BP470-27
- BP505-27
- BP525-27
- BP550-27
- BP590-27
- BP635-27
- BP660-27
- BP850-27
- PR032-27
- PS007
- SU25.5-27
- SD30.5-27



NEW

FK220-27 BN Series Filter Kit

Reduced bandwidth design for further spectral separation. Recommended for outdoor applications or situations where ambient light can be overwhelming. For lenses with M25.5, M27 and M30.5 threads.

- BN470-27
- BN532-27
- BN595-27
- BN630-27
- BN660-27
- BN740-27
- BN810-27
- BN850-27
- BN940-27
- PR032-27
- PS030
- SU25.5-27
- SD30.5-27



FK100-size Machine Vision Binder Filter Kit

Available in all Threaded Mount Sizes: M13.25 - M105

- BP324
- BP470
- BP525
- BP550
- BP590
- BP635
- BP660
- BP850
- LA120
- PR032
- PS007
- SU25.5-27
- SD30.5-27

*Step Adapter Rings Included in M27 only

ALSO AVAILABLE: IK100 NIR Machine Vision Binder Filter Kit Includes: LP695, LP780, BP800, BP850, LP920, LP1000
NK100 Neutral Density Binder Filter Kit Includes: ND030, ND060, ND090, ND120, ND200, ND300, ND400

TO ORDER: Add Threaded Mount size (e.g. 43) to Binder Kit of choice. Example Part #: FK100-43



NEW

SK100 Filter Kit

The Ultimate Filter Kit

The NEW SK100 includes 70 pieces of M27 size filters for UV, VIS and NIR imaging; making it the ultimate resource for testing the effects of color and wavelength when evaluating image quality.

Filter categories included: Bandpass; Dual Bandpass; Longpass; Neutral Density; Shortpass; Polarizing; Light Balancing and Protective

> ACCESSORIES



Extension Rings

Decrease Minimum Object Distance

- Increase magnification for close-up applications
- Available as a 6 Ring Set **EXT-S-SET**, 4 Ring Set **EXT-UL-SET** and individual sizes; 0.5mm-100mm



Step Adapter Rings

Filter and Lens Size Versatility

Step-Up Rings

- Use larger diameter filters on lenses with smaller diameter filter threads
- Available sizes: SU22.5-25.5 – SU77-105

Step-Down Rings

- Use smaller diameter filters on lenses with larger diameter filter threads
- Available sizes: SD27-25.5 – SD72-62



Part #:
RA034

Part #:
RA060

Rotating Right Angle Attachments

View at a 90° angle

- Helpful for applications with space constraints
- Locks in position with a thumbscrew, guarding against movement due to shock or vibration
- Can be used in conjunction with a filter
- Available adjustments through 360° (RA034) and 300° (RA060)

LE100 CS Mount Lens Enclosure

Protect Your Lens

- Fits CS Mount cameras
- Anti-reflection coated to maximize transmission
- Accommodates lenses up to 42.5mm in length and 37.5mm in diameter, including thumbscrews

Two A/R Protective Lens Options

LE100-LP340: Glass Protective Window
LE100-AC380: Acrylic Protective Window

LE100* Enclosure Set Includes the Following:

LE254-43: Enclosure mount with built in 5mm spacer
Extension Tube Sizes: LE025-43 (25mm), LE010-43 (10mm), LE005-43 (5mm)

Custom adapters available for various C-mount camera models. Contact us for details.

*Additional extension tubes in the above sizes are available and can be purchased individually to accommodate longer lenses



Close-Up Lens Set

Increase Focus Distance

- Threads onto the front of a lens
- Available from stock, mounted in threaded, black anodized aluminum rings, sizes M25.5-M62
- Each set consists of +1, +2 and +4 diopter lenses



Part #: CK100

CK100 Cleaning Kit

For all Optics, Lenses and Lighting

Contents: Compressed Air Duster, Glass Surface Cleaner, Premium Grade Optical Tissue, Microfiber Cleaning Cloth, Cotton Swabs

(Also available in a compact version for easy storage. Part #: CK100-NA. Compressed Air Duster is not included.)



> MOUNTING SOLUTIONS

MOUNTS FOR ANY SYSTEM

THREADED MOUNT

Designed for Lenses with Filter Threads

- Sizes available: M13.25-M105
- Black anodized aluminum
- Custom thread sizes are available upon request

CREATE PART

Select a filter and add a mount size (e.g. M27) Example: BP470-27



C/CS CAMERA MOUNT

Designed to thread directly into any C/CS mount camera

- Threads between the lens and sensor, each filter is supplied with an installation wrench
- Helpful in applications with space constraints
- Can be used with wide angle lenses that do not accept filters at the front end to prevent vignetting
- Pitch: P32 (TPI)

CREATE PART

Select a filter and add "-25.4" Example: BP470-25.4



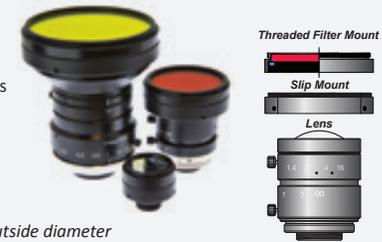
SLIP MOUNT

Designed for Wide Angle Lenses without Filter Threads

- Accommodates standard threaded mounts
- Low profile and oversize diameter design prevents wide angle lens vignetting
- Includes black Delrin Slip Mount adapter plus Thread-mounted Filter

CREATE PART

Select a filter, use "S" for slip and add the outside diameter of lens in mm (e.g. 43mm) Example: BP470-S43



Threaded Filter Mount

Slip Mount

Lens

> THREADED

Mount Size	Pitch
M13.25	0.5
M22.5	0.5
M25.5	0.5
M27	0.5
M30.5	0.5
M34	0.5
M35.5	0.5
M37	0.75
M37.5	0.5
M39	0.5
M40.5	0.5
M43	0.75
M46	0.75
M48	0.75
M49	0.75
M52	0.75
M55	0.75
M58	0.75
M62	0.75
M67	0.75
M72	0.75
M77	0.75
M82	0.75
M86	1.0
M95	1.0
M105	1.0

> C/CS MOUNT

M25.4

> SLIP MOUNT

Outside Diameter Range	Threaded Mount
15-19.0	M22.5
19.1-26.5	M30.5
26.6-31.9	M40.5
32.0-40.9	M46
41.0-50.9	M55
51.0-57.9	M62
58.0-68.0	M72
68.1-79.0	M82
79.1-101.0	M105

> UNMOUNTED

Custom Shapes & Sizes Available



UNMOUNTED

- Any MidOpt filter type can be provided as an Unmounted filter
- Custom shapes and sizes are typically available within a two week lead time

CREATE PART

CIRCLE: Use "D" and add diameter in mm (e.g. 19mm) Example: BP470-D19.

SQUARE: Use "R" and add side measurement in mm (e.g. 15mm) Example: BP470-R15.

RECTANGLE: Use "R" and add length in mm (e.g. 30mm) x width in mm (e.g. 15mm) Example: BP470-R30x15



MIDOPT

MIDWEST OPTICAL SYSTEMS, INC.

A manufacturer of custom precision optical components and systems since 1988, Midwest Optical Systems (MidOpt) is recognized as the world's leading resource for off-the-shelf and custom machine vision filters, lenses and accessories used in industrial imaging applications.

MidOpt filters and coatings are extremely durable and tough enough to withstand repeated cleaning, solvents, high heat, humidity and vibration without degradation.

MidOpt has an extensive history in optical component design, fabrication and inspection, and continues to develop innovative new products for industrial imaging that are simply not found elsewhere.

APPLICATIONS/INDUSTRIES SERVED:

- › Machine Vision
- › Security & Defense
- › License Plate Recognition / Intelligent Traffic Solutions
- › Medical and Life Science
- › Scientific Research
- › Agriculture / NDVI (Normalized Difference Vegetation Index)
- › Aerial Imaging
- › Motion Analysis & Gaming
- › Media & Photography

