MIDOPT
Midwest Optical Systems, Inc.
Machine Vision Filters, Lenses and Accessories
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MACHINE VISION FILTER RECOMMENDATIONS

	Part No PREFIX	FILTER TYPE, COLOR & USE	COMMON APPLICATIONS/BENFITS FOR INDUSTRIAL IMAGING	LIGHT SOURCE/ FLUORESCENCE EMISSION RANGE
COLOR BANDPASS* *Bandpass filters shield systems from unwanted light, enhance contrast for viewing of desired features and correct chromatic aberration*	BP470	**Blue Bandpass – UV Block** Enhances blue lighting/fluorescence	• Passes only blue light sources / UV-excited blue fluorescence • Tests the effects of blue lighting on an application • Improves resolution by focusing only on the blue portion of the spectrum	420-500nm
	BP505	**Green-Blue Bandpass** Enhances blue lighting/fluorescence	• Passes only blue light sources / UV-excited blue fluorescence • Tests the effects of blue lighting on an application • Improves resolution by focusing only on the blue portion of the spectrum	470-570nm
	BP525	**Light Green Bandpass** Enhances green lighting/fluorescence	• Passes only green light sources / UV-excited green fluorescence • Tests the effects of green lighting on an application • Improves resolution by focusing only on the green portion of the spectrum	490-570nm
	BP590	**Orange Bandpass** Enhances amber/orange lighting/fluorescence	• Passes only amber/orange light sources / UV-excited amber/orange fluorescence • Tests the effects of blue lighting on an application • Improves resolution by focusing only on amber/orange portion of the spectrum	550-620nm
	BP635	**Light Red Bandpass** Enhances red lighting/fluorescence	• Passes only light red light sources / UV-excited amber/orange fluorescence • Tests the effects of light red lighting on an application • Improves resolution by focusing only on the light red portion of the spectrum	590-670nm
	BP660	**Dark Red Bandpass** Enhances darker red lighting/fluorescence	• Passes only darkred light sources / UV-excited amber/orange fluorescence • Tests the effects of dark red lighting on an application • Improves resolution by focusing only on the red portion of the spectrum	630-690nm
COLOR LIGHT BALANCING	LA120	**Light Balancing (Minus Blue +)** Correct white LED color	• Attenuates part of the blue spike in white LED's, creating a more natural white	525-1100nm
INFRARED PASS– VISIBLE BLOCK	LP920	**IR Dichroic Longpass** Enhances IR lighting	• Most commonly used for covert IR applications (940nm LED's) • Blocks all UV+visible+some IR to enhance IR lighting/viewing • Shields the system from unwanted light	920-1100nm
	BP695	**IR Bandpass** Enhances IR lighting/fluorescence	• Enhances IR lighting/fluorescence	695-1100nm
	BP735	**IR Bandpass** Enhances IR lighting/fluorescence	• Enhances IR lighting/fluorescence	695-785nm
	LP780	**IR Bandpass** Enhances IR lighting	• Blocks all UV+visible to enhance IR lighting/viewing • Most commonly used with Xenon strobe	780-1100nm
	BP850	**IR Bandpass** Enhances IR lighting	• Passes only 850nm IR LED illuminations • Tests the effects of IR lighting on an application • Shields the system from unwanted light • Enhances contrast for improved viewing of desired features • Improves resolution by focusing only on the IR portion of the spectrum (chromatic aberration correction)	800-1000nm
	BP880	**IR Bandpass** Enhances IR lighting	• Passes only 880nm IR LED illuminations • Tests the effects of dark IR lighting on an application • Shields the system from unwanted light • Enhances contrast for improved viewing of desired features • Improves resolution by focusing only on the IR portion of the spectrum (chromatic aberration correction)	830-1000nm
INFRARED BLOCK– VISIBLE PASS	SP645	**Med. Red/NIR Dichroic Blocking** Exceptional IR blocking	• Block red/IR from interfering with color rendition in color CCD/CMOS cameras • Commonly placed over the image sensor • Reduces IR radiation/camera bloom from hot metal/glass extrusion process	375-645nm
	SP675	**Deep Red/NIR Dichroic Blocking** Exceptional IR blocking	• Block some red/IR from interfering with color rendition in CCD/CMOS cameras • Commonly placed over the image sensor • Reduces IR radiation/camera bloom from hot metal/glass extrusion process	375-675nm
	SP700	**Hot Mirror/NIR Dichroic Blocking** Standard IR blocking	• Block IR light from interfering with color rendition in CCD/CMOS cameras • Commonly placed over the image sensor • Reduces IR radiation/camera bloom from hot metal/glass extrusion process	380-700nm
	SP730	**Hot Mirror/NIR Colorless Blocking** Standard IR blocking	• Block IR light from interfering with color rendition in CCD/CMOS cameras • Commonly placed over the image sensor • Reduces IR radiation/camera bloom from hot metal/glass extrusion process	360-730nm
	BP550	**UV and NIR Blocking** Block UV+IR	• Block ultraviolet and infrared • Passes all visible wavelenghts	400-700nm

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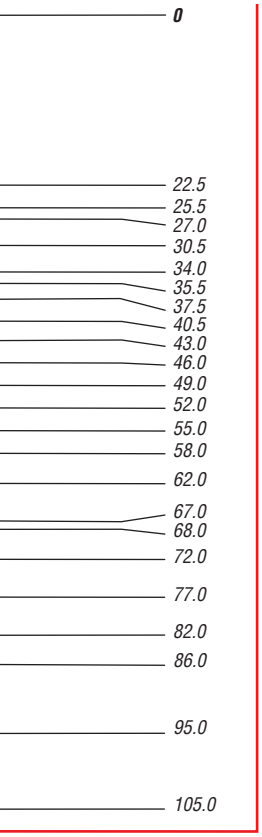
PROTECTIVE WINDOW	AC380	**Protective window** Scratch-Resistant Acrylic	• FDA applications – no glass over inspection area	380-1100nm
	LP340	**Protective window** A/R Coated	• A/R (anti-reflection) coating provides higher transmission	340-1100nm
NEUTRAL DENSITY	ND030	**Neutral Density** OD=0.3 (50% trans.)	• Reduces light intensity • Reduces the depth of field while maintaining a given shutter speed	400-700nm
	ND060	**Neutral Density** OD=0.6 (25% trans.)	• Reduces light intensity • Reduces the depth of field while maintaining a given shutter speed	400-700nm
	ND090	**Neutral Density** OD=0.9 (12.5% trans.)	• Reduces light intensity • Reduces the depth of field while maintaining a given shutter speed	400-700nm
	ND120	**Neutral Density** OD=1.2 (6.12% trans.)	• Reduces light intensity • Viewing into bright lamps • Welding applications	400-700nm
POLARIZING	PR032	**Linear Polarizer** Reduces reflections	• Rotating, with locking screw • Reduces glare from most reflective surfaces to improve contrast • Most common polarizer for machine vision applications • Reduces light intensity	400-700nm
	PC052	**Circular Polarizer** Reduces reflections	• Reduces glare from most reflective surfaces to improve contrast • 1/4-wave retarder compensates for twist in light created with auto-iris lenses or in-camera metering systems. • Most commonly used in consumer-type SLR cameras • Reduces light intensity	400-700nm
	PS007	**Linear Polarizing Sheet** Reduces reflections	• Reduces glare from most reflective surfaces to improve contrast • Plastic polarizing material used to mount over light source to further eliminate reflections caused by the light source in use • Reduces light intensity	400-700nm
	PI035	**Infrared Linear Polarizer**	• Reduces reflections caused by IR lighting	700-2200nm



Size your lens against this chart. Place the '0' point on the inside edge of your lens and read to the inside edges.

STOCK FILTER SIZES

Part No. SUFFIX	Thread Dia. x Pitch (mm)	External Dia (mm)	Aperture Dia (mm)
-25.4	C-Mount	25.4	18.5
-22.5	M22.5 x P0.5	24	18.5
-25.5	M25.5 x P0.5	27.5	21
-27	M27.0 x P0.5	29	23
-30.5	M30.5 x P0.5	32	26.5
-34	M34.0 x P0.5	36	30
-35.5	M35.5 x P0.5	37	31.5
-37	M37.0 x P0.75	39	33
-37.5	M37.5 x P0.5	39.5	33.5
-40.5	M40.5 x P0.5	42	36
-43	M43.0 x P0.75	45	39.5
-46	M46.0 x P0.75	48	41.5
-49	M49.0 x P0.75	51	44.5
-52	M52.0 x P0.75	54	47.5
-55	M55.0 x P0.75	57	50.5
-58	M58.0 x P0.75	60	53.5
-62	M62.0 x P0.75	65	57.5
-67	M67.0 x P0.75*	70	63.2
-68	M68.0 x P0.75*	70	63.2
-72	M72.0 x P0.75*	75	67.7
-77	M77.0 x P0.75*	80	73
-82	M82.0 x P0.75*	85	78.8
-86	M86.0 x P0.75*	90	80
-95	M95.0 x P1.0*	99	90
-105	M105.0 x P1.0*	109	100

* Large filters require additional lead time to ship.

FILTER KITS

Each kit contains sample filters and technical information in the size ordered.

FK100 MACHINE VISION FILTERS*

LA120		BP635	
BP324		BP660	
BP470		BP850	
BP525		PR032	
BP550		Polarizing Sheet	115mm square
BP590			

IK100 INFRARED FILTERS

LP695		BP850	
LP780		LP920	
BP800		LP1000	

BK100 BANDPASS FILTERS

BP365		BP660	
BP470		BP695	
BP525		BP735	
BP590		BP800	
BP635		BP880	

NK100 NEUTRAL DENSITY FILTERS

ND030		ND200	
ND060		ND300	
ND090		ND400	
ND120			

Step-Up and Step Down Adapter Rings are available to expand the testing capabilities of all the Filter Kits.

*Included in the FK100-27 Kit are Adapter Rings for M25.5 and M30.5 threaded lenses making this an excellent starter kit.

HOW TO ORDER

Filters: Use the **prefix** from the type charts with a **suffix** from the *size chart* at left. Ex: BP470-27 for a Blue Bandpass filter in a M27xP0.5 mount.

Filter Kits are ordered the same way. Ex: FK100-27.

Slip Mount adapters are available if your lens does not have threads for mounting a filter. Please call to order.