

## LA120 LIGHT BALANCING FILTER (MINUS BLUE)

### MidOpt Light Balancing Filters

Light Balancing Filters correct artificial lighting so colors appear more natural. These filters balance color, preventing the need for additional software processing. This allows for greater image stability and control.

### Acrylic Longpass Filter Information

- Achieve accurate color images when using an artificial light source
- Increase contrast by correcting the emission spectrum of various light sources
- Exceptional surface quality; 40/20 scratch/dig
- LA series: Reduce blue shading ("warm" the scene) and commonly used with white LED and xenon strobe lighting
- LB series: Subdue the reddish hue found with some tungsten, halogen, sodium and other light sources
- FL series: Used to reduce the greenish cast created by fluorescent lighting

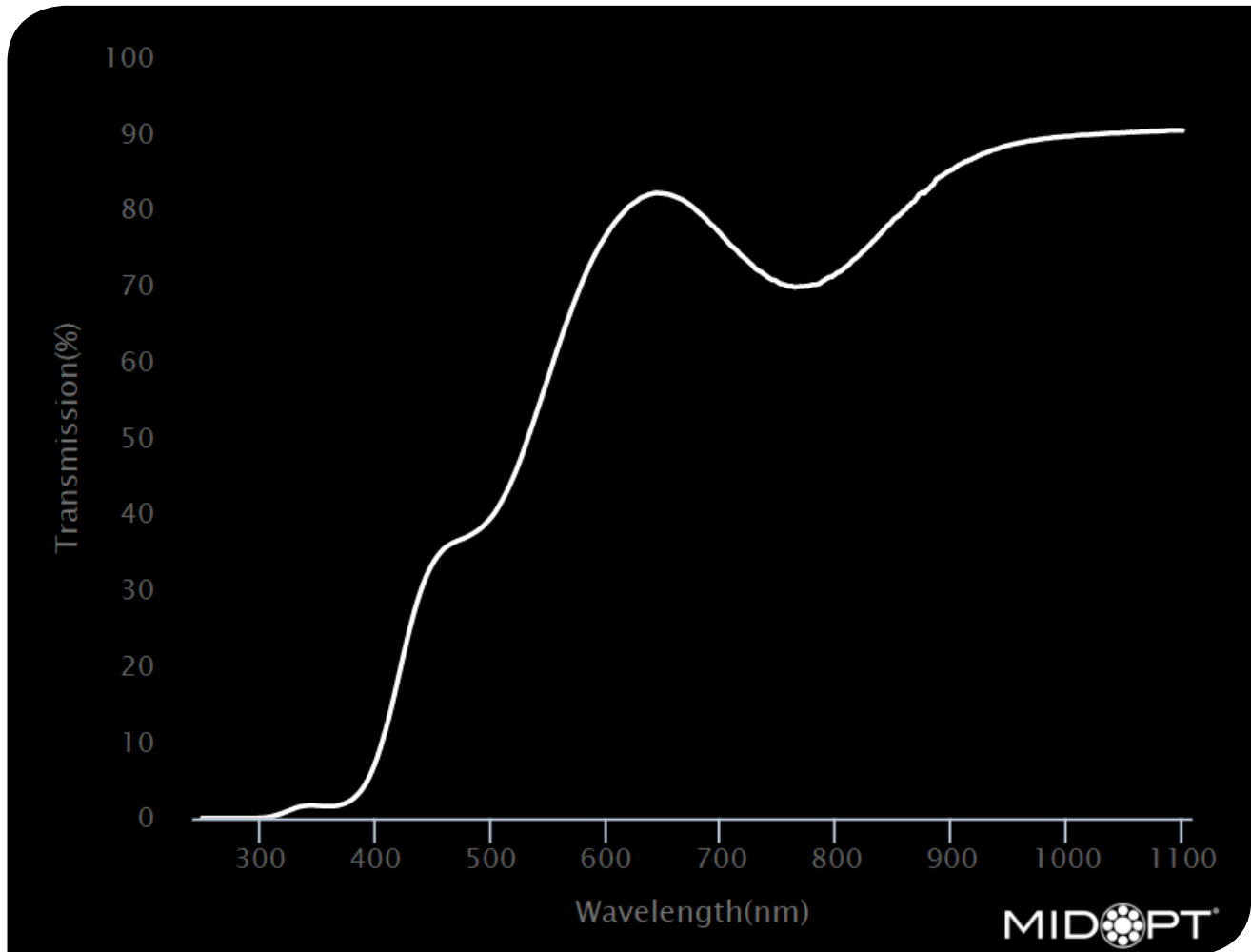


### Light Balancing Filter Applications

Light Balancing Filters are Commonly used in color applications (i.e. machine vision/factory automation, photography, and fluorescence imaging).

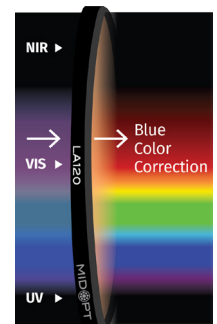
# LA120

Light Balancing Filters



<b>Useful Range:</b>	400-700nm
<b>Tolerance:</b>	+/- 5 Mired
<b>Surface Quality:</b>	40/20
<b>STABLEDGE:</b>	Yes

LA120 counteracts the ~120 mired color change created by traditional white LEDs (appearing very bluish in cast) as well as some similar xenon and metal halide lighting, while eliminating a large amount of the UV spectrum. Instead of using warm white LEDs, placing an LA120 filter over the camera lens and using cool white (bluish) LEDs results in the same apparent color, but a light head with higher intensity, longer life, and lower cost.



**LA120 TRANSMISSION DATA (TYPICAL)**

Wavelength (nm)	Transmission (%)
1100	90.43
1090	90.45
1080	90.35
1070	90.28
1060	90.23
1050	90.14
1040	90.09
1030	89.99
1020	89.89
1010	89.82
1000	89.68
990	89.52
980	89.37
970	89.12
960	88.88
950	88.53
940	88.06
930	87.53
920	86.86
910	86.19
900	85.27
890	84.36
880	82.75
870	81.64
860	80.07
850	78.79
840	77.21
830	75.61
820	74.09
810	72.72
800	71.69

Wavelength (nm)	Transmission (%)
790	70.81
780	70.20
770	69.94
760	69.97
750	70.41
740	71.18
730	72.22
720	73.68
710	75.11
700	76.75
690	78.29
680	79.72
670	80.97
660	81.74
650	82.13
640	82.11
630	81.55
620	80.43
610	78.79
600	76.62
590	73.98
580	70.73
570	66.83
560	62.59
550	58.00
540	53.43
530	48.95
520	44.96
510	41.81
500	39.47
490	37.96

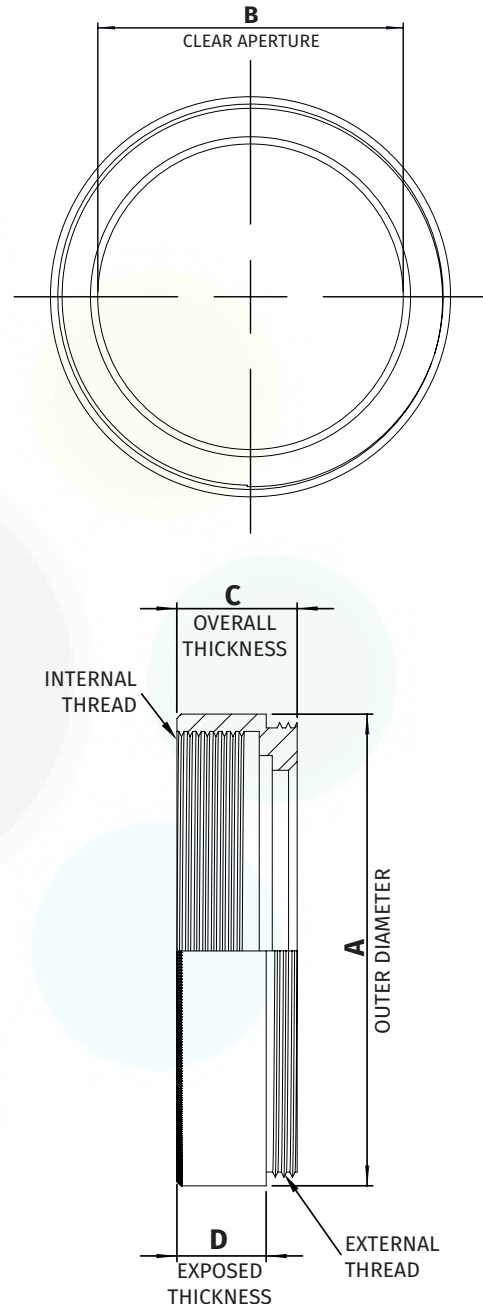
Wavelength (nm)	Transmission (%)
480	37.04
470	36.40
460	35.49
450	33.54
440	30.15
430	24.93
420	18.51
410	12.20
400	7.29
390	4.13
380	2.47
370	1.75
360	1.56
350	1.63
340	1.64
330	1.29
320	0.68
310	0.23
300	0.03
290	0.00
280	0.00
270	0.00
260	0.00
250	0.01

**STANDARD THREADED MOUNT DIMENSIONS**

**NOTES:**

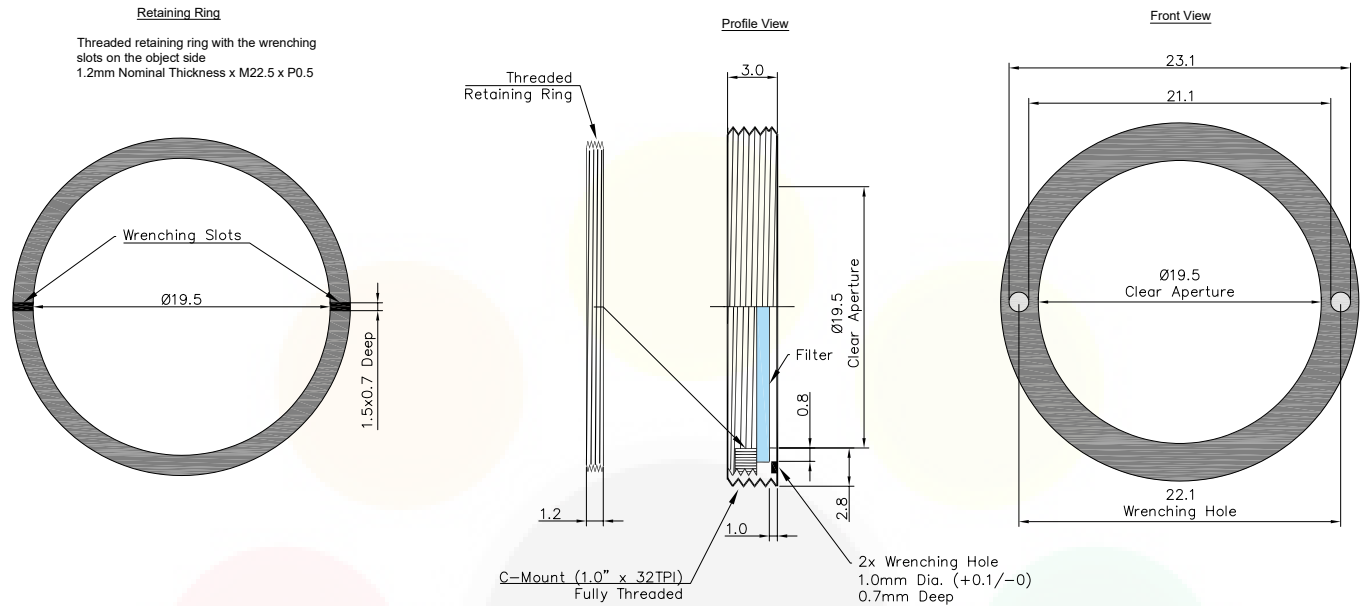
1. Inner and outer threads are of the same size and pitch.
2. Filter mount and retaining ring are black anodized aluminum.
3. All dimensions indicated in mm.
4. Tolerance: +/-0.3mm.

Mount Size	A	B	C	D
M13.25 x P0.5	14.3	10.6	7.5	5.7
M22.5 x P0.5	24	18.5	7	5.2
M25.5 x P0.5	27.5	21	7	5.2
M27 x P0.5	29	22.5	7	5.2
M30.5 x P0.5	32.5	25.5	7	5.2
M34 x P0.5	36	29	7	5.2
M35.5 x P0.5	37.5	30.5	7	5.2
M37 x P0.75	39	31.9	6.5	4.5
M37.5 x P0.5	39.5	32.5	7.2	5.2
M39 x P0.5	41	34	7	5.2
M40.5 x P0.5	42.5	35.5	7	5.2
M43 x P0.75	45	38	7	5.2
M46 x P0.75	48	41	7	5.2
M48 x P0.75	50	43	7	5.1
M49 x P0.75	51	44	7	5.2
M52 x P0.75	54	47	7	5.2
M55 x P0.75	57	50	7	5.2
M58 x P0.75	60	52.9	6.5	4.5
M62 x P0.75	64	57.1	7	5.2
M67 x P0.75	70	61.8	6.5	4.5
M72 x P0.75	75	66.9	6.5	4.5
M77 x P0.75	80	71.9	6.5	4.5
M82 x P0.75	85	76.8	6.5	4.5
M86 x P1.0	89	80.8	6.5	4.5
M95 x P1.0	98.2	89.9	10	7.1
M105 x P1.0	109.8	100	11	8



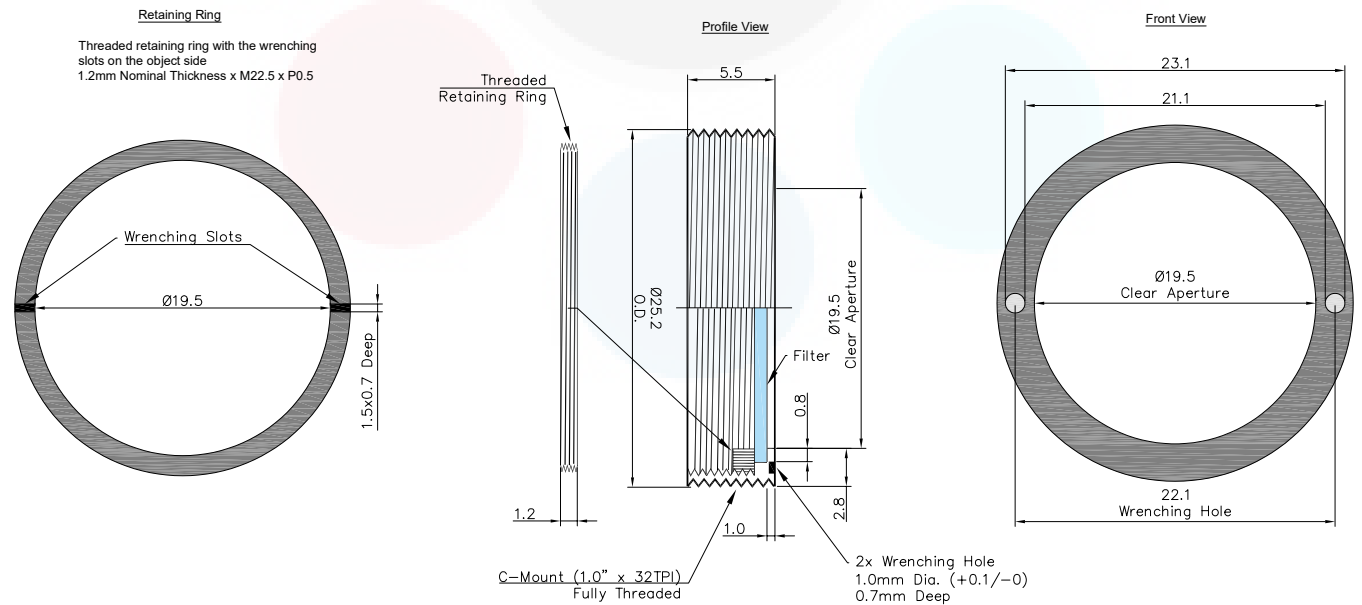
**C-MOUNT DIMENSIONS (-25.4)**

C-Mount is available on filters with a substrate thickness of 1mm or less



**C-MOUNT SIS DIMENSIONS (-25.4-SIS)**

C-Mount SIS is available on filters with a substrate thickness greater than 1mm and less than or equal to 3.5mm



**MOUNTS FOR ANY SYSTEM**



Midwest Optical Systems is the world's leading resource in machine vision filters and optical solutions. MidOpt's innovative filter designs ensure flawless control, dependable results and unmatched image quality. Mounting solutions are available for any system for lenses with and without filter threads, the exclusively designed 25.4™ C-Mount, and custom fabrication of unmounted shapes and sizes.

**Mount Sizes**

› **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-MOUNT**

M25.4™

› **SLIP MOUNT**

Outside Diameter Range	Threaded Mount
15.1-19.0	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

› **M12 MOUNT**

Outside Diameter Range	Part #
13.2-14.2	S14A
14.3-15.0	S15A



› **THREADED MOUNT** *Designed for Lenses with Filter Threads*

- MidOpt offers the largest variety of filters in-stock and ready to ship
- 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



› **25.4™ C-MOUNT** *Threads into all C-Mount Cameras*

- 25.4™ C-Mount Camera Filter exclusively designed by MidOpt to thread directly into any C-Mount Camera between the lens and sensor
- Recommended for use with wide angle lenses to prevent vignetting and angle shift
- Helpful in applications with space constraints and lenses without filter threads
- Custom installation wrench included

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 Threaded Mount 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



› **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 with many shipped same day

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



› **CUSTOM SOLUTIONS FOR M12 MOUNT LENSES**

- Offered in aluminum slip mount over the lens
- Can be optically cemented behind the lens

**HOW TO ORDER**

To order a filter with a threaded mount, first select a filter (e.g. BP470) and add the mount size (e.g. M27) to build your part number (e.g. BP470-27).



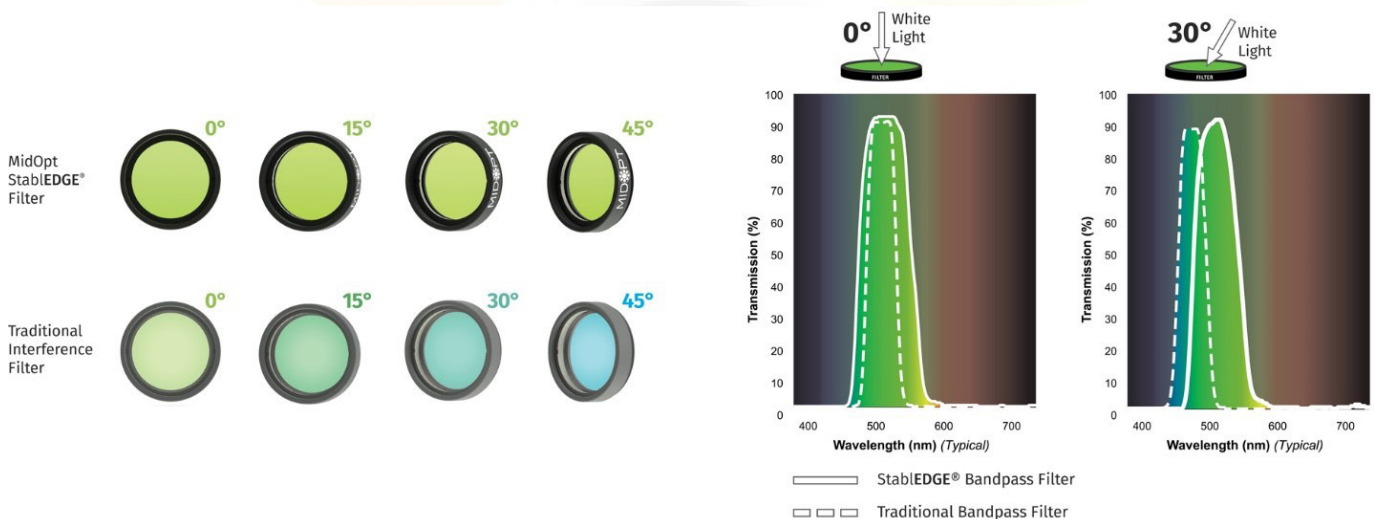


MIDOPT STABLEDGE®

Minimize the Effects of Short Shifting

MidOpt StablEDGE® optical filters are specifically designed to be less susceptible to effects from angular shifting seen when optical filters are placed in front of short focal length (<12mm) camera lenses. This feature is becoming increasingly important as today’s trend in machine vision imaging progresses towards more compact inspection layouts, which utilize less space – forcing the camera and lens closer to the subject. As a result, short focal length lenses are now more widely used than ever before.

Using a traditional coated interference filter in these more compressed configurations results in contrast loss toward the edges of the image. Because of the angle imposed by the field of view (FOV) of the lens, the passband shifts and allows short wavelength ambient light to overwhelm the subject. Light from LED or laser diode lighting is also cut off. In contrast, peak transmission of MidOpt’s StablEDGE® filters is not significantly altered, and effects due to short shifting are minimized.



StablEDGE® filters take advantage of absorptive filter glass to form the leading edge of the filter passband. This assures no shifting in this region, even when the lens FOV exceeds 100°. Filter glasses also offer far superior lower wavelength blocking of ambient light, sharp transition slopes and unmatched durability. MidOpt’s StablEDGE® Filter cut-off slopes utilize interference filter coatings, however the cut-off slope is positioned to be sufficiently broad, and the Gaussian passband profile ensures that excessive ambient light is not allowed to degrade image contrast. Thus, shifting will not significantly encroach into peak transmission, assuring angular insensitivity over the desired range.

Among all machine vision filter manufacturers, MidOpt is unique in incorporating StablEDGE® technology across a full range of products. StablEDGE® designs are less angle-of-incidence sensitive, inherently more rugged, and are environmentally stable.

