

AC400 ACRYLIC OLEOPHOBIC VIS A/R COATED UV-BLOCK PROTECTIVE WINDOW

MidOpt Protective Filters

MidOpt specializes in manufacturing custom made Protective Windows, which can be designed for nearly any type or size application at any wavelength range requirement. MidOpt custom windows can be manufactured from different substrates and include various coatings depending on the application requirements.

- Glass, acrylic, polycarbonate, sapphire and other substrates
- Oleophobic, anti-reflection, anti-smudge, anti-fog and hydrophobic coatings available
- Chemically strengthened glass options, including Gorilla Glass®
- Wavelength and polarization filtering
- Adhesive backing for easy fastening
- Custom silk screening service for borders, masking, fiducial marks, logos or patterns
- Available with various mounting configurations based on need



Protective Filter Information

Protective Filters are designed to shield your lens and lighting from dirt, dust, liquids, impact and harsh environments without sacrificing image quality.

Custom Protective Filter Applications

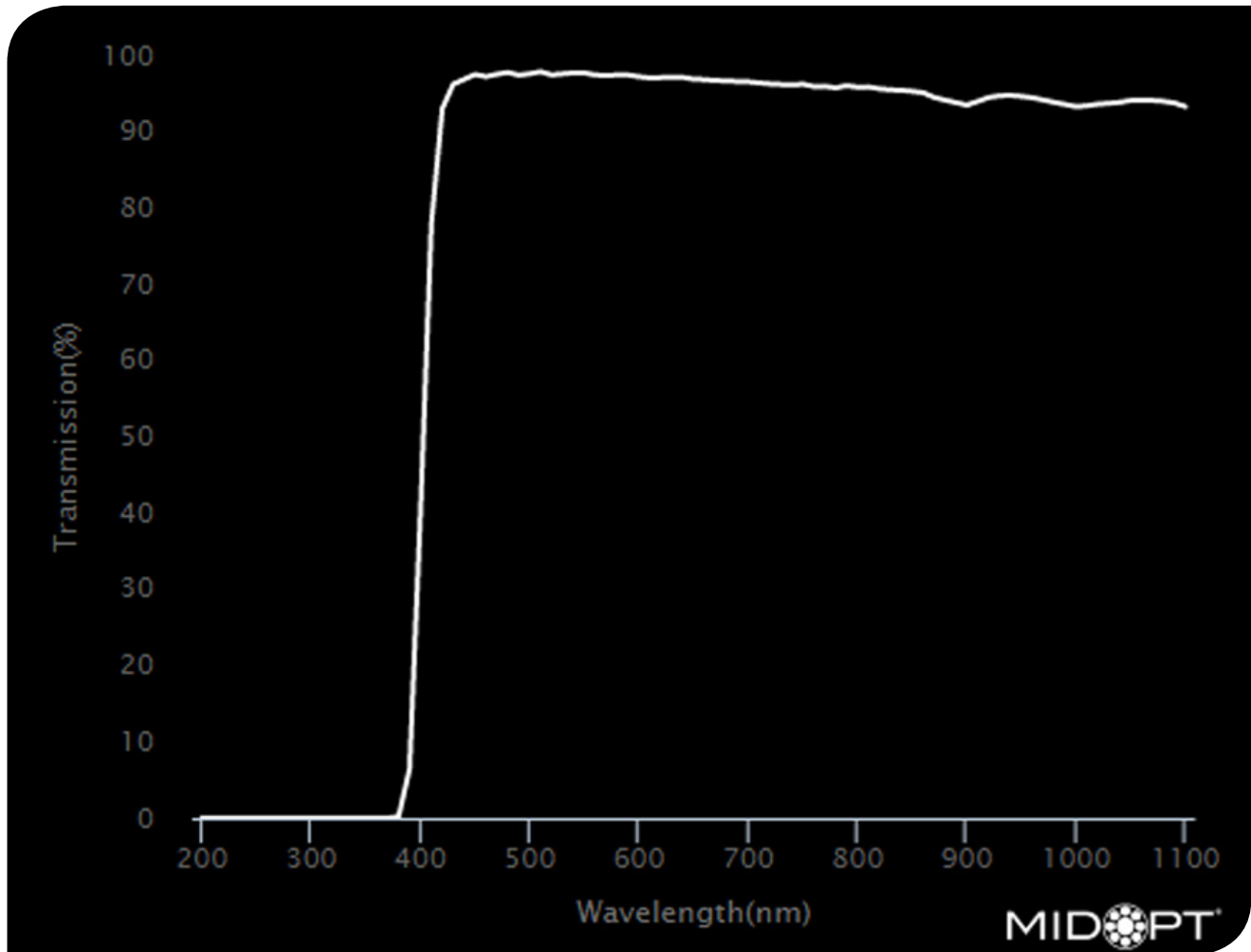
- | | |
|--|--|
| <ul style="list-style-type: none"> ■ Industrial camera enclosures ■ Dashboard camera enclosures ■ LCD screen covers ■ Sensor and scanner covers ■ Autonomous Vehicle LiDAR enclosures | <ul style="list-style-type: none"> ■ Drone camera enclosures ■ Sign enclosures ■ Display covers ■ Quartz tile assembly ■ Thermal applications |
|--|--|

APPLICATIONS: Protective Filters are useful in all imaging applications. The LP285 can withstand high temperatures and is impact resistant (similar qualities to Pyrex).



AC400

Protective Filters



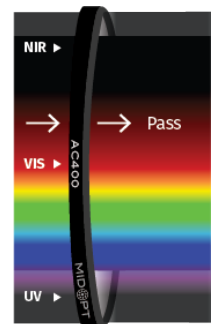
Useful Range:	415-1100nm
Cut-on Wavelength 50% T:	400nm
Tolerance:	+/- 10nm
Peak Transmission:	≥98%
Surface Quality:	80/50
STABLEEDGE:	Yes

AC400 is a 3mm thick abrasion-, scratch-, breakage-, and solvent-resistant acrylic protective window made to withstand harsh environments. It is half the weight of comparable glass windows and additionally features external oleophobic coatings that curb fingerprint smudging. The vacuum-sputtered coatings on both surfaces are 50 times more scratch-resistant than untreated acrylic, far more durable than standard "dip" coatings, and are impervious to all types of solvents, fuels and other chemicals, including acetone, methylene chloride and MEK.

This material blocks almost all UV light while averaging greater than 98% transmission over the 450-700nm visible spectrum. This protection acrylic window is a highly effective yet economical solution for covering screens, camera enclosures and on-axis lighting modules. It is often recommended for FDA/EFSA applications where thickness is a concern and the use of glass is not permitted.

AC400 is available from stock in larger sheets with protective tape on both surfaces. Custom sizes and shapes are quickly laser cut in house. Next day shipping is the norm. > View all acrylic filters

*Available with an oleophobic coating on one surface - P/N: AC401



AC400 TRANSMISSION DATA (TYPICAL)

Wavelength (nm)	Transmission (%)
1100	93.31
1090	93.77
1080	94.00
1070	94.11
1060	94.12
1050	94.11
1040	93.87
1030	93.73
1020	93.63
1010	93.41
1000	93.30
990	93.59
980	93.86
970	94.17
960	94.47
950	94.65
940	94.77
930	94.73
920	94.50
910	93.98
900	93.50
890	93.83
880	94.16
870	94.51
860	95.13
850	95.31
840	95.44
830	95.50
820	95.64
810	95.89
800	95.85

Wavelength (nm)	Transmission (%)
790	96.05
780	95.76
770	95.97
760	95.93
750	96.25
740	96.14
730	96.21
720	96.28
710	96.41
700	96.56
690	96.59
680	96.69
670	96.71
660	96.85
650	96.90
640	97.14
630	97.13
620	97.11
610	97.07
600	97.22
590	97.45
580	97.44
570	97.42
560	97.44
550	97.73
540	97.72
530	97.60
520	97.46
510	97.88
500	97.61
490	97.42

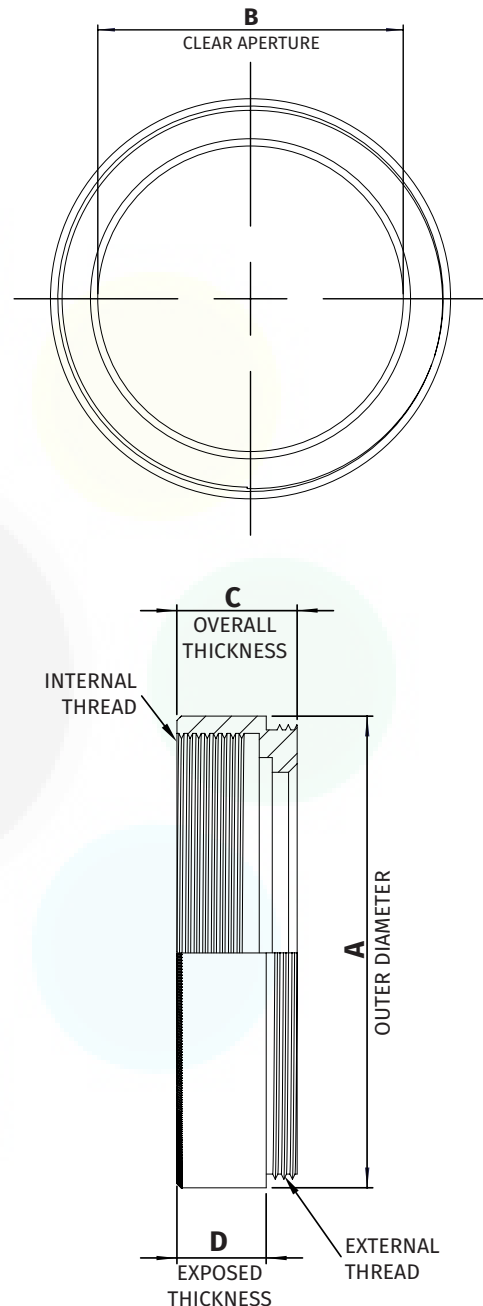
Wavelength (nm)	Transmission (%)
480	97.79
470	97.55
460	97.23
450	97.52
440	96.88
430	96.24
420	93.04
410	77.94
400	40.08
390	6.42
380	0.19
370	0.01
360	0.00
350	0.00
340	0.00
330	0.00
320	0.00
310	0.00
300	0.00
290	0.00
280	0.00
270	0.00
260	0.00
250	0.00
240	0.00
230	0.00
220	0.00
210	0.00
200	0.00

STANDARD THREADED MOUNT DIMENSIONS

NOTES:

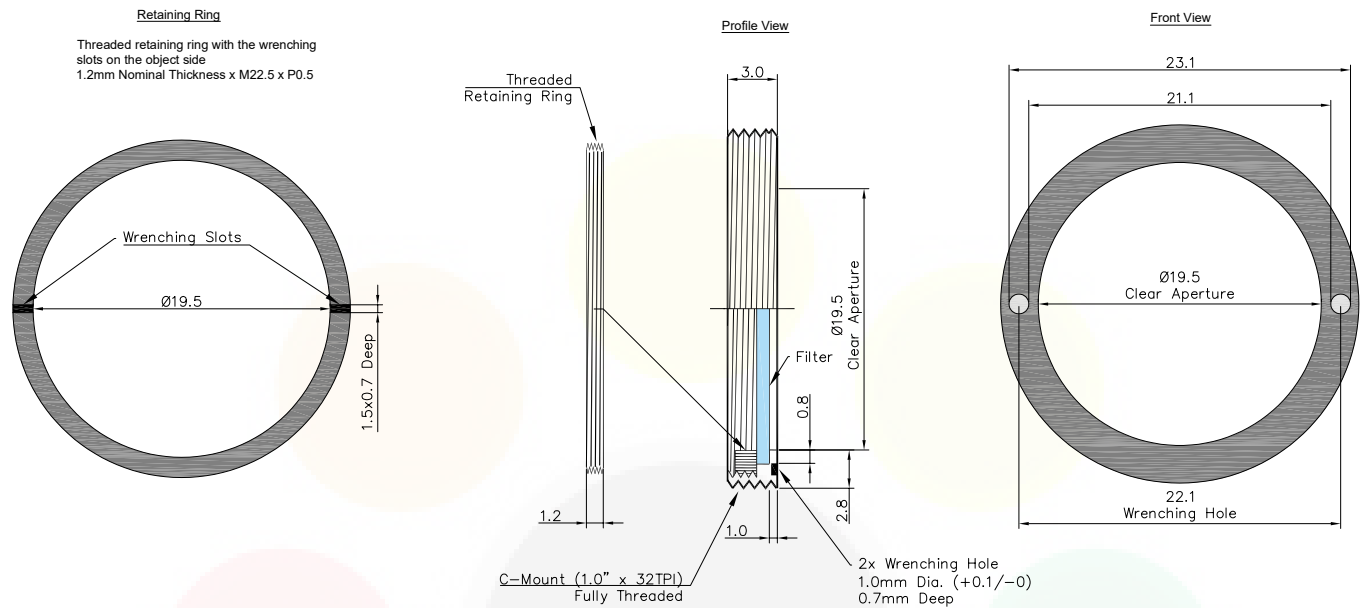
1. Inner and outer threads are of the same size and pitch.
2. Filter mount and retaining ring are black anodized aluminum.
3. All dimensions indicated in mm.
4. Tolerance: +/-0.3mm.

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



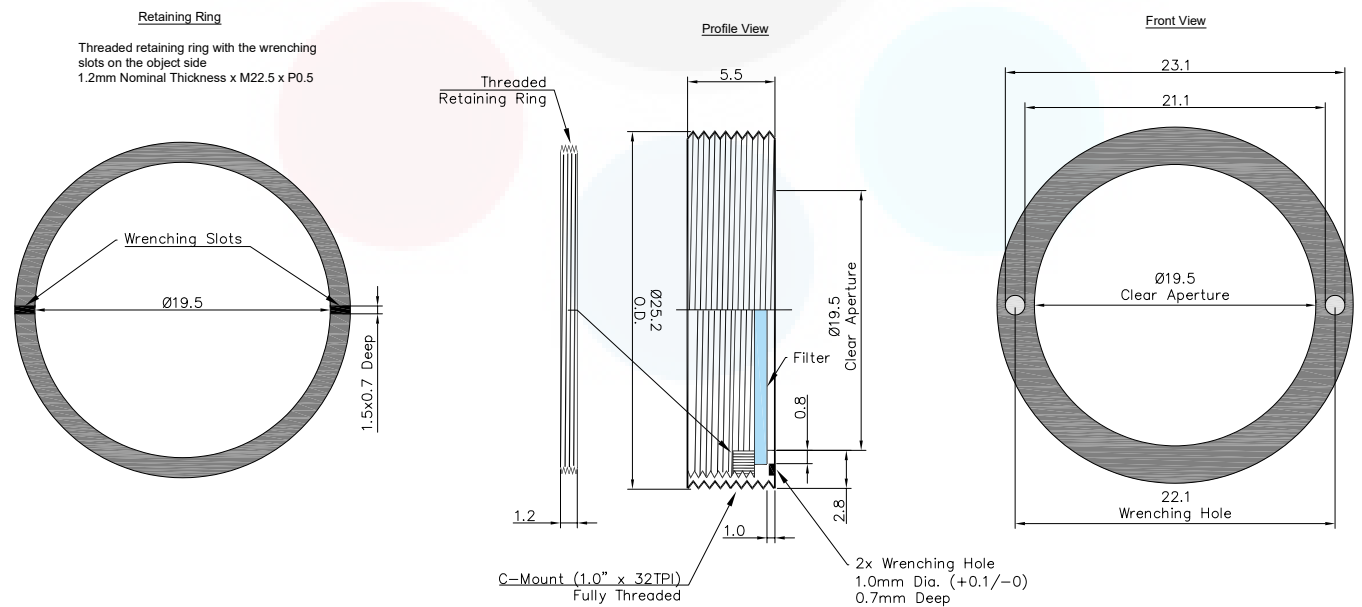
C-MOUNT DIMENSIONS (-25.4)

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).

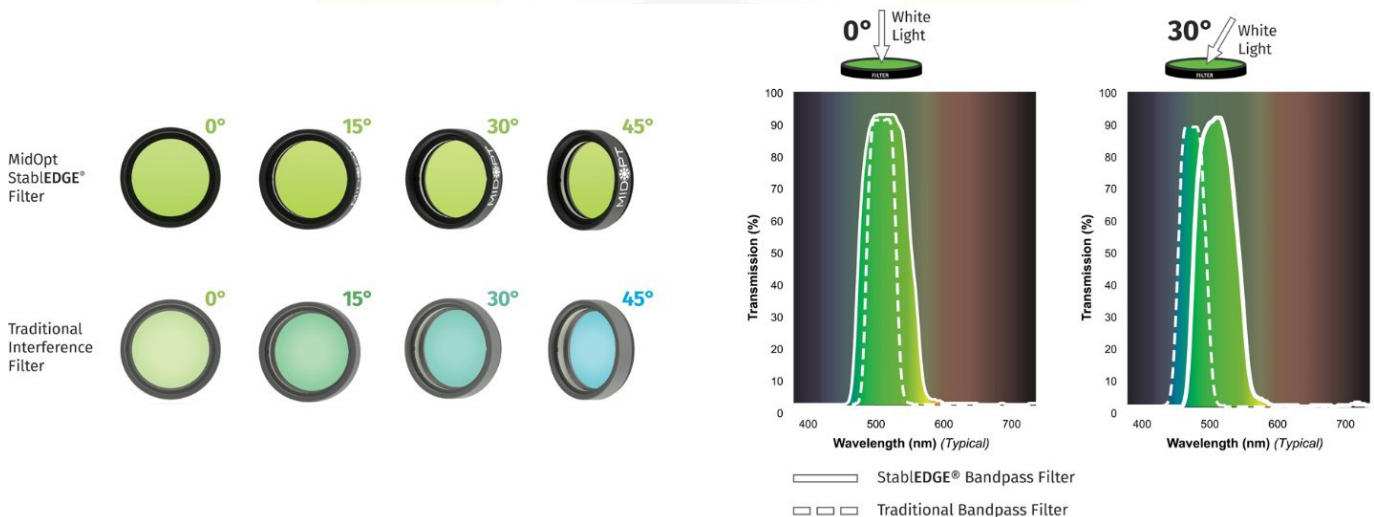


MIDOPT STABLEEDGE®

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.

