

BP1550 SHORT-WAVE INFRARED BANDPASS FILTER

MidOpt Bandpass Filters are specially designed for industrial imaging

- Available in UV, VIS and NIR passbands
- Achieve optimal contrast
- Improve system control, repeatability and stability
- Block interfering wavelengths, eliminating the need for shrouds
- Increase resolution by reducing chromatic aberration
- Anti-reflection coated for maximum transmission
- Hard coated, single substrate fabrication
- Exceptional surface quality; 40/20 scratch/dig



Bandpass Filter Applications

Bandpass Filters are used in a variety of industries, including machine vision, factory automation, security and surveillance, license plate recognition, medical and life science, agricultural inspection, aerial imaging, motion analysis, photography and cinematography.

BP Series Broad Bandwidth

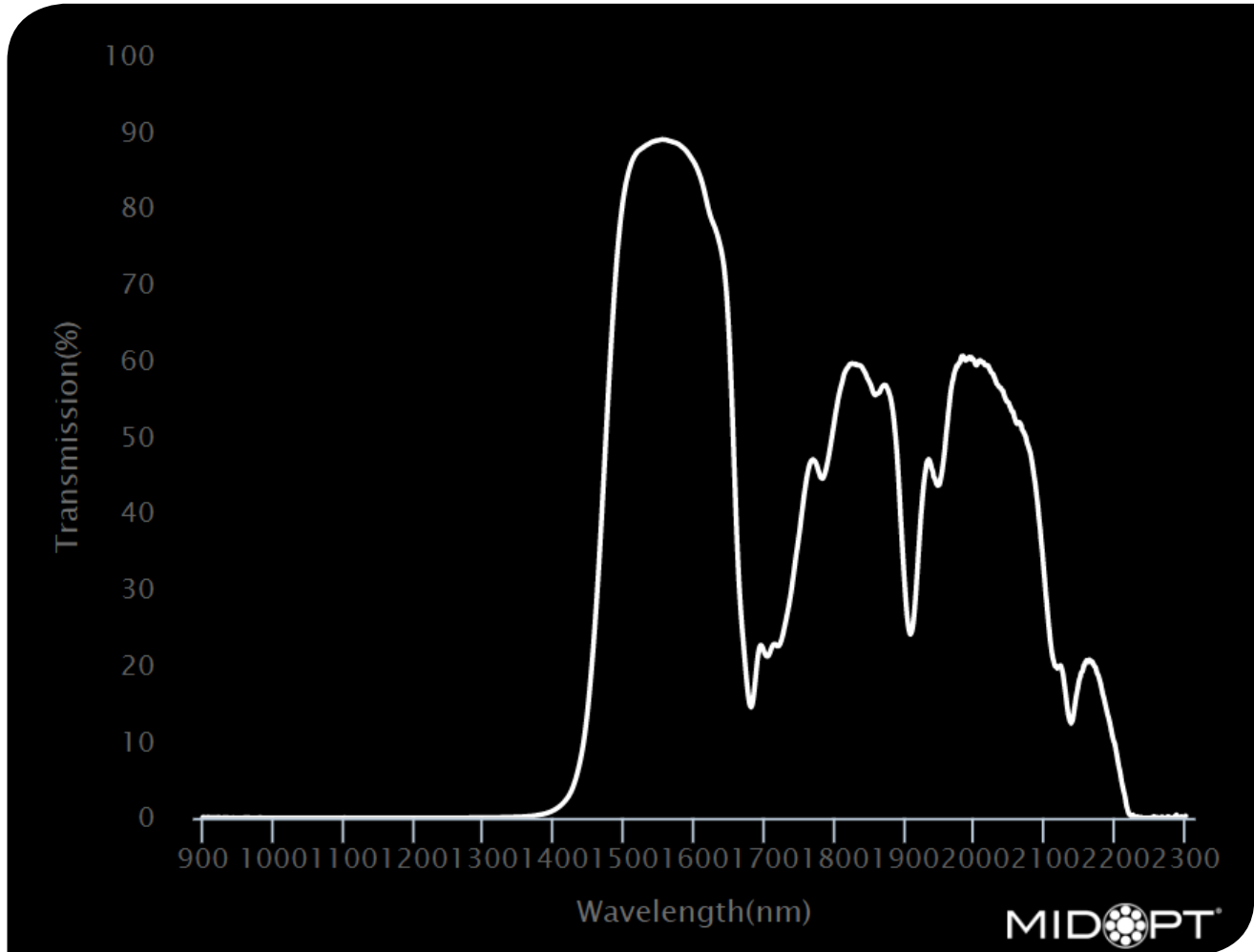
- Designed with a broad, Gaussian passband to mimic and accommodate the entire output of the most common LED wavelengths
- Test the effects of monochromatic illumination
- High transmission $\geq 90\%^*$
- Superior out-of-band blocking
- StabEDGE[®] design reduces angular dependency and minimizes short-shifting effects
- Double-side polished glass for exceptional parallelism and optical flatness
- Available in sizes up to 165mm sq.

*Applies in most cases

APPLICATIONS: BP Series are the most popular filters used in machine vision and factory automation systems and are a critical element in fluorescence imaging.

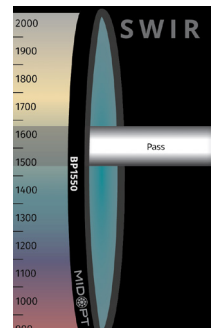
BP1550

Bandpass Filter



Useful Range:	1485-1645nm
FWHM:	190nm
Tolerance:	+/- 10nm
Peak Transmission:	≥88%
Surface Quality:	40/20
Compatible LED:	1550nm

NA



BP1550 TRANSMISSION DATA (TYPICAL)

Wavelength (nm)	Transmission (%)
2300	0.26
2290	0.11
2280	0.00
2270	0.01
2260	0.06
2250	0.00
2240	0.00
2230	0.01
2220	0.45
2210	4.27
2200	9.33
2190	13.27
2180	17.12
2170	19.93
2160	20.60
2150	18.49
2140	13.32
2130	15.60
2120	19.79
2110	21.42
2100	30.42
2090	40.48
2080	47.35
2070	50.52
2060	51.73
2050	53.91
2040	56.02
2030	57.21
2020	59.07
2010	59.83
2000	59.66

Wavelength (nm)	Transmission (%)
1990	60.29
1980	60.32
1970	58.20
1960	51.28
1950	43.97
1940	45.43
1930	45.84
1920	35.52
1910	24.50
1900	30.42
1890	46.18
1880	54.97
1870	56.80
1860	55.66
1850	57.11
1840	59.00
1830	59.49
1820	59.28
1810	56.92
1800	52.24
1790	46.72
1780	44.71
1770	46.98
1760	44.48
1750	37.54
1740	30.91
1730	25.65
1720	22.56
1710	22.29
1700	21.68
1690	20.72

Wavelength (nm)	Transmission (%)
1680	14.64
1670	23.02
1660	38.62
1650	62.65
1640	73.79
1630	77.36
1620	80.01
1610	83.75
1600	85.99
1590	87.40
1580	88.27
1570	88.69
1560	88.99
1550	88.96
1540	88.72
1530	88.18
1520	87.50
1510	85.84
1500	81.89
1490	73.60
1480	59.70
1470	42.73
1460	27.20
1450	15.82
1440	8.62
1430	4.76
1420	2.71
1410	1.66
1400	1.02

BP1550 TRANSMISSION DATA (TYPICAL)

Wavelength (nm)	Transmission (%)
1390	0.63
1380	0.43
1370	0.27
1360	0.20
1350	0.13
1340	0.11
1330	0.09
1320	0.06
1310	0.05
1300	0.03
1290	0.03
1280	0.03
1270	0.02
1260	0.02
1250	0.02
1240	0.01
1230	0.02
1220	0.01
1210	0.01
1200	0.01
1190	0.01
1180	0.01
1170	0.01
1160	0.01
1150	0.00
1140	0.01
1130	0.01
1120	0.01
1110	0.01
1100	0.01
1090	0.01

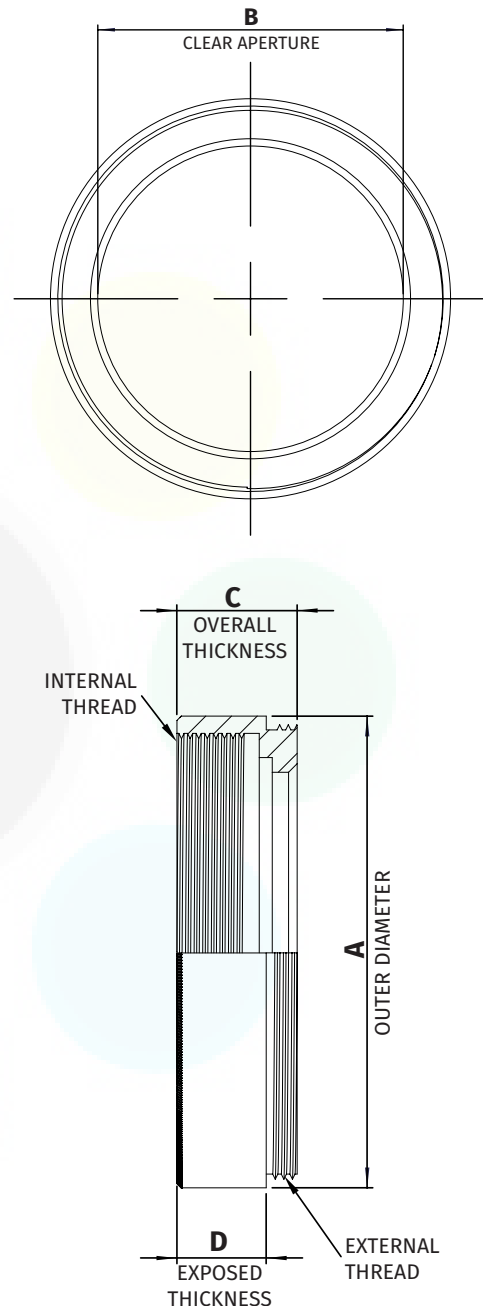
Wavelength (nm)	Transmission (%)
1080	0.01
1070	0.00
1060	0.01
1050	0.01
1040	0.01
1030	0.00
1020	0.02
1010	0.01
1000	0.01
990	0.00
980	0.04
970	0.01
960	0.03
950	0.00
940	0.01
930	0.04
920	0.05
910	0.05
900	0.08

STANDARD THREADED MOUNT DIMENSIONS

NOTES:

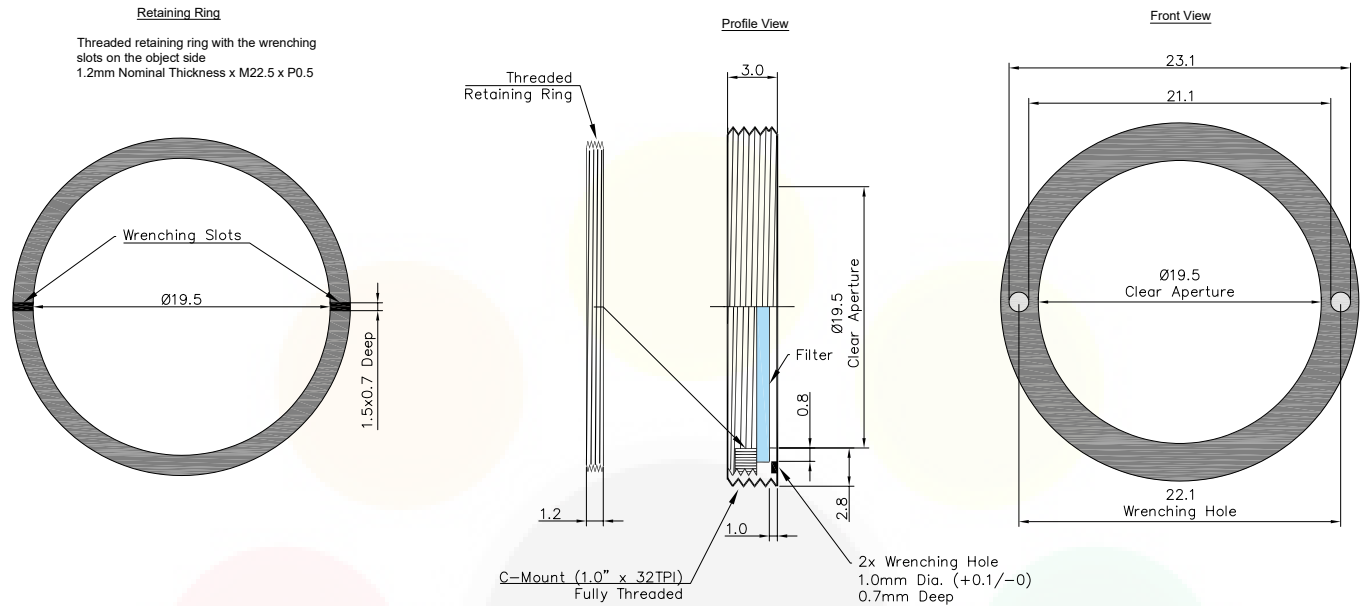
1. Inner and outer threads are of the same size and pitch.
2. Filter mount and retaining ring are black anodized aluminum.
3. All dimensions indicated in mm.
4. Tolerance: +/-0.3mm.

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



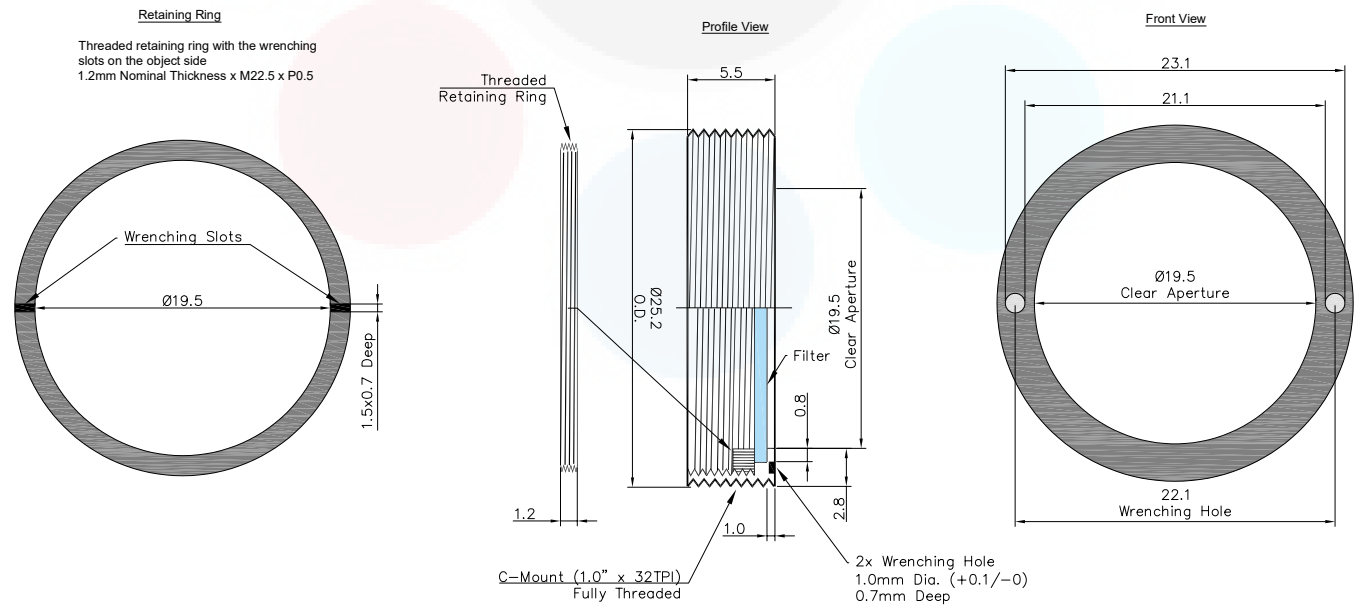
C-MOUNT DIMENSIONS (-25.4)

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).

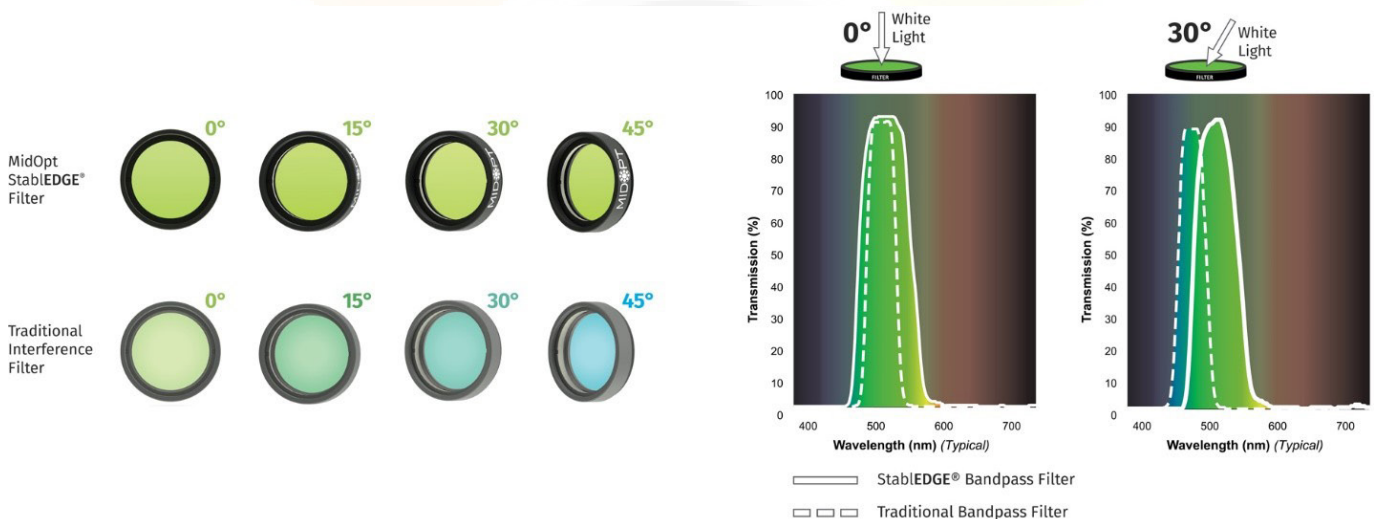


MIDOPT STABLEEDGE®

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.

