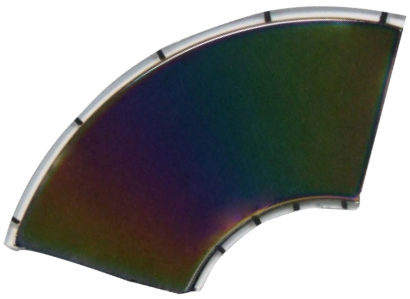
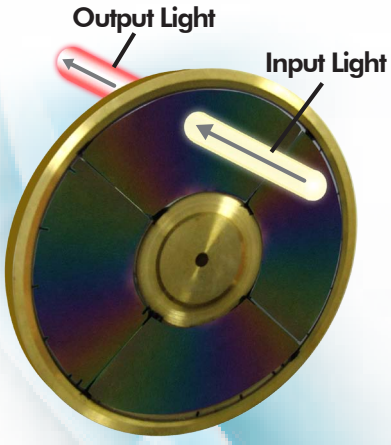
Circular Variable Filters



Key features

- **Full wavelength scanning from visible to long wave IR.**
- **Successive discrete wavelength selection in the range of the segment.**
- **Allows instrument design flexibility and versatility.**
- **High volume manufacturing.**



CVF Wavelength Ranges (µm)

- 0.4 - 0.675
- 0.6 5 - 0.95
- 0.9 - 1.35
- 1.3 - 2.5
- 2.4 - 4.6
- 4.3 - 8.1
- 7.7 - 14.3

CI Systems' Circular Variable Filters (CVF's) are interference narrow-pass filters of advanced design which are deposited on circular substrates, called segments. Film thickness, and therefore the wavelength of peak transmittance varies linearly and continuously with angular position on the segment.

CI Systems CVF's are ideally suited as monochromators in compact, non-dispersive spectrometers, providing medium-resolution spectral radiation measurements, or when information is desired at a number of specific wavelengths in the relevant spectral range.

A CVF can be manufactured in any wavelength range from 0.4µm in the visible region of the spectrum up to 14.3 µm in the infrared. The specific wavelength at which the radiation is transmitted by the segment is selected by appropriately positioning it on the optical beam. A CVF segment rotation, in a way that the beam traces a circumferential path on it, provides a continuous scan of its complete wavelength range. A spectral resolution element size on the CVF varies between one and two millimeters.

delta optical thin film

CI SYSTEMS

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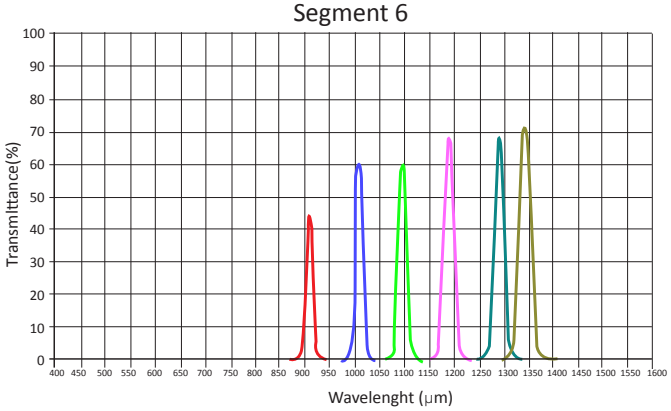
Segment

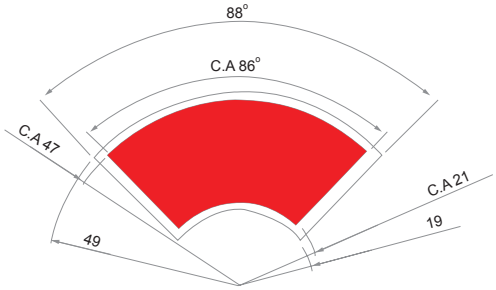
	Value in	5a	5b	6	1	2	3	4
Nominal wavelength range	µm	0.4 - 0.675	0.65 - 0.95	0.9 - 1.35	1.3 - 2.5	2.4 - 4.6	4.3 - 8.1	7.7 - 14.3
Blocking range	µm	0.3 - 1.15	0.3 - 1.15	0.3 - 2.6	1 - 5	1 - 7	1 - 15	1 - 15
Bandwidth (FWHM) *	%	1.5	1.5	1.5	2	1.8	1.5	1.8
Transmittance at peak wavelength	%	>50%	>50%	>50%	>25%	>25%	>60%	>30%
Out-of-band average transmittance**	%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%

* as a %of peak wavelength, typical
** in the blocking range

Example of spectral transmittance graphs measured at different positions on the CVF

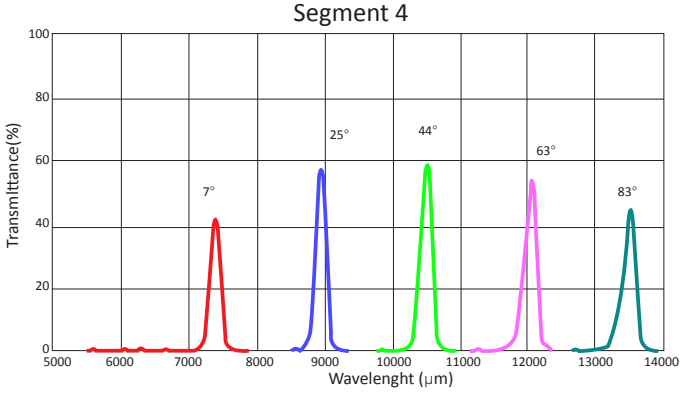
Segment 6





The red area indicates the active filter area or Clear Aperture (C.A). The linear radii dimensions are in millimeters.

Segment 4



CI Systems' CVF's are physically durable and withstand the rigors of industrial and field environment conditions. They are resistant to abrasion and humidity, and can be cleaned by conventional optical cleaning techniques.

Applications engineering support and optical assembly capabilities are available to assist you with the calibration and integration of CVF in your system.

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