

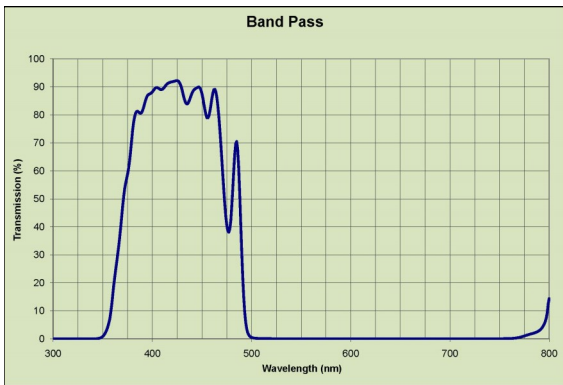
# High Performance Thin Film Optical Coatings Technical Capabilities

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## Coatings Capabilities

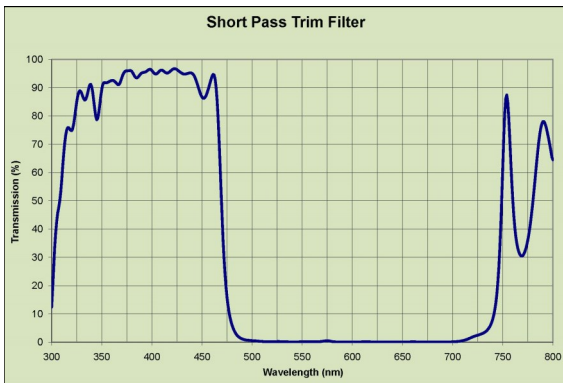
### Wavelength Selection Filters - Band Pass, Short Pass, Long Pass, and Notch

Trim filters, also commonly known as cut-off or dichroic filters, are advantageous for a variety of applications. Common uses include optical noise reduction for bar-code readers and wavelength band isolation for fluorescence applications. Trim filters are often used in conjunction with absorptive filter glasses to form band pass filters.



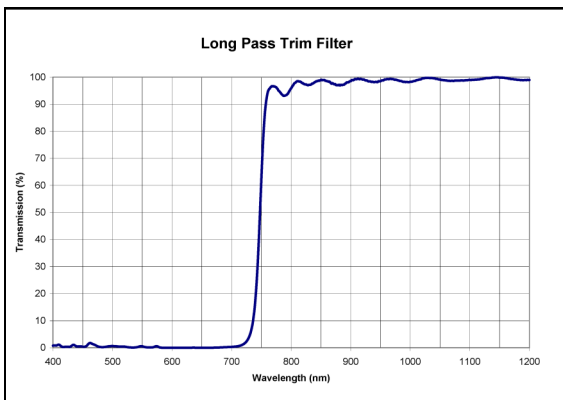
#### Band Pass Filters

These filter coatings transmit varying wavelength bands, which are determined by two cutoff wavelengths. Filters can be made at any given wavelength from near ultraviolet to near infrared.



#### Short Wave Pass Trim Filters (SWP)

Short pass filters block a select band of longer wavelengths. This example, short pass filters block a select band of longer wavelengths. short wave pass cutoff filter passes light from 325-450nm and blocks visible light from 500-700nm. It has a 50% point at 470nm  $\pm$ 10nm. Custom short wave pass filters are available on request.



#### Long Wave Pass Trim Filter (LWP)

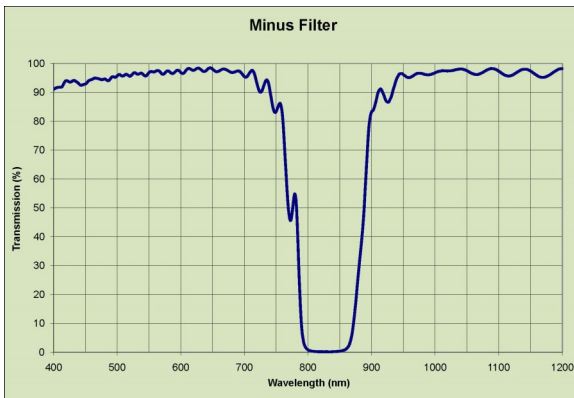
Long pass filters block a select band of shorter wavelengths. This example, long wave pass cutoff filter provides average reflectance more than 99% from 400-700nm, 50% cutoff point at 750nm  $\pm$ 10nm and 95% transmission from 780-1200nm. Custom long wave pass filters are available on request.

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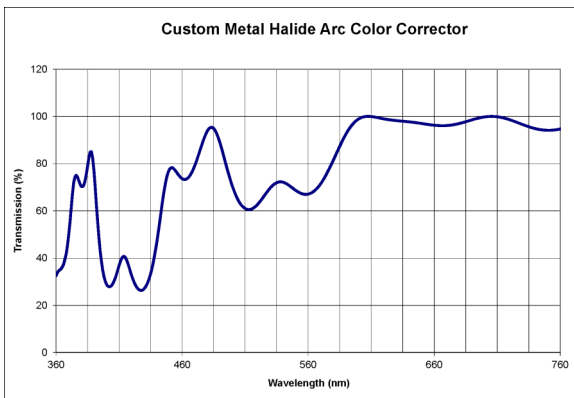
## Coatings Capabilities

### Wavelength Selection Filters - Band Pass, Short Pass, Long Pass, and Notch - *continued*



#### Notch (Minus) Filter

Notch filters block a relatively narrow band of wavelengths between shorter and longer pass bands. This example narrow band minus filter has a nominal bandwidth of 110nm with an average reflection of more than 99% over a nominal bandwidth of 30-40 nm. The pass bands have an average transmission of 90%. Custom made minus filters are available on request.



#### Color Temperature Filter for Metal Halide Lamps

The filter suppresses down the high peak areas in the blue and green that is output by the lamps to have a more level loaded color output response. More white and not as "cold" a color.