



# LED ColorDichroics™

## Dichroic Filters/Mirrors for LED Applications

Materion Balzers Optics LED ColorDichroics™ dichroic filters/mirrors are used to efficiently transmit and/or reflect the light from light emitting diode (LED) sources. These dichroic filters/mirrors are designed to combine light emitted from different color LEDs into one beam. The thin film coatings of these LED ColorDichroics™ are specifically optimized for random polarized light. Both the high reflection and the high transmission wavelength ranges are specifically adapted to LED spectral emission characteristics.



### Benefits

- High reflection and high transmission in respective wavelength ranges
- Narrow spectral separation between transmission and reflection bands
- Narrow cut-on/cut-off spectral tolerances and excellent spectral uniformity
- Excellent optical and mechanical stability due to plasma sputtering deposition process (20–120° temperature shift < 1 nm, 48 h humidity shift < 1 nm)
- LED ColorDichroics™ dichroic filters/mirrors are available for all main arrangement options of separate Red, Green and Blue LEDs, as well as options involving Cyan and Yellow LEDs
- High degree of flexibility for custom specific spectral characteristics
- Engineering support for custom designed light management systems

### Applications

Materion Balzers Optics LED ColorDichroics™ dichroic filters/ mirrors are used for combination of light emitted by separate high brightness LED light sources.

### Technical Data

#### Spectral performance

Angle of incidence (AOI): 45°

(different AOI upon customer request)

Polarization: optimized for random polarized light.

#### Reflection/transmission bands

– Blue typ. 420...470 nm

– Green typ. 500...560 nm

– Red typ. 590...660 nm

(adapted and optimized upon customer's request)

Solutions for Cyan and Yellow LEDs also available.

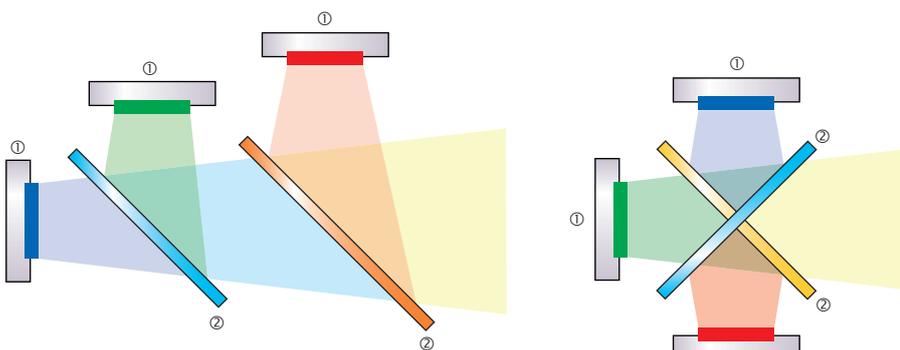
#### Substrate material

Heat resistant borosilicate glass, other substrate materials on request

#### Dimensions

On customer's request

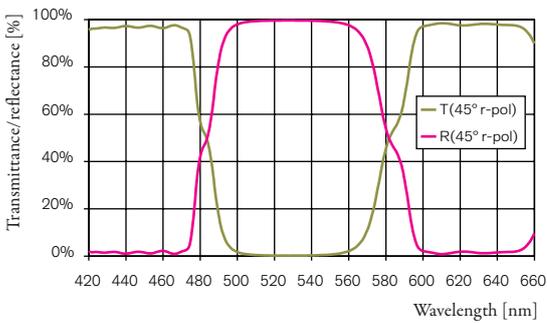
### Application examples LED ColorDichroics™ (Dichroic Filters/Mirrors)



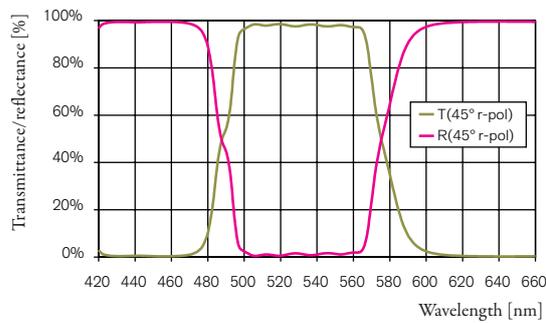
① LED Source  
② LED ColorDichroics™

Typical spectral characteristics of LED ColorDichroics™

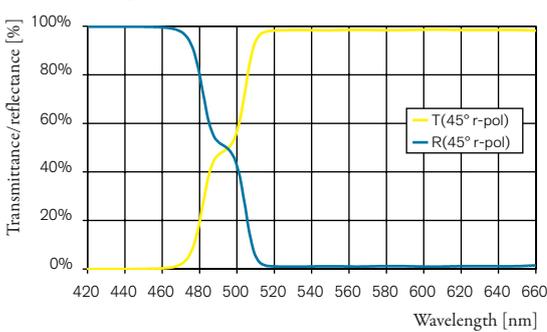
Green mirror/blue-red filter



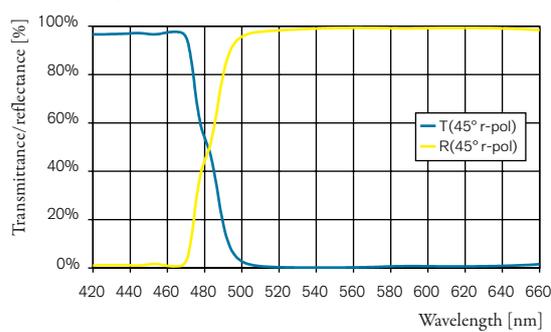
Green filter/blue-red mirror



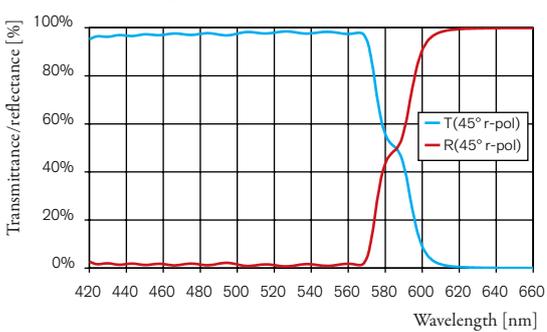
Blue mirror/green-red filter



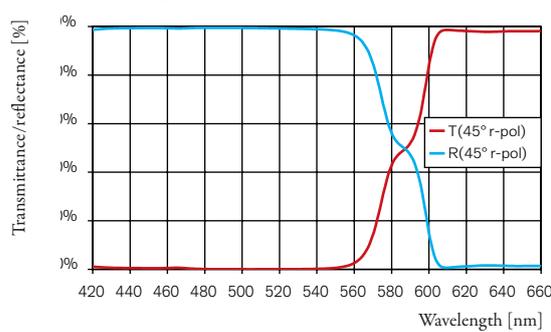
Blue filter/green-red mirror



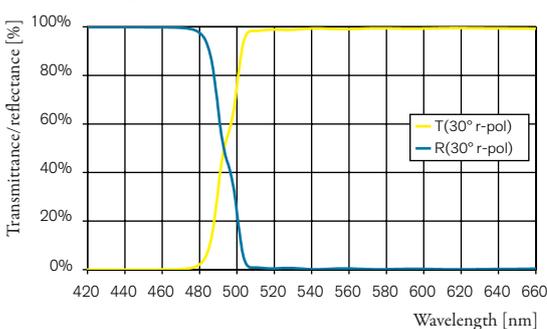
Red mirror/blue-green filter



Red filter/blue-green mirror



Blue mirror/green-red filter for AOI: 30 deg



Red filter/blue-green mirror for AOI: 30 deg

