

TECHNICAL DATA SHEET

Patterned Thin Film Optical Filters

PRODUCT DESCRIPTION

Deposition Sciences, Inc. has long had a reputation for producing extremely durable and robust optical coatings, however it is not widely known that DSI has the capability to pattern these coatings through the employment of photolithography technology. Using techniques and equipment similar to those used to produce the world's most sophisticated microprocessors, optical coatings can be deposited and patterned in high resolution to create features of extreme precision from optical coatings renowned for exceptional quality and durability.

APPLICATIONS

- Multispectral Filters
- Alignment Features
- Reticles
- CCD Color Filter Arrays
- Variable Density Color Filters
- Gratings

TECHNICAL SPECIFICATIONS

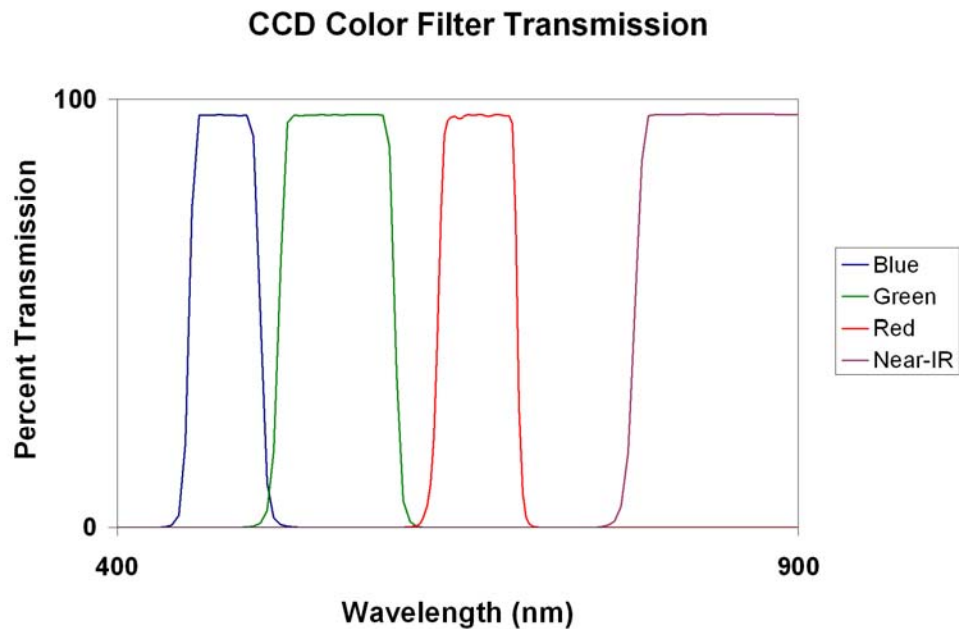
When developing a patterned filter, several variables must be considered, including:

- Spectral Requirements for the Coating(s) being Deposited
- Feature Size of the Pattern
- Alignment Requirements of the Features
- Substrate Size
- Substrate Material
- Number of Different Filters/Coatings being Deposited and Patterned

Spectral requirements of the filter can affect the size and positional accuracy of the features. More challenging optical filters require more layers to achieve required spectral performance. These layers result in coatings with significant physical thickness. Generally speaking, as the coatings become thicker they are more challenging to pattern.

The figure on the back shows spectral data from a product with four filters. Each filter is deposited and subsequently patterned, creating a multi-spectral filter with negligible spatial transition between filter segments.

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The table below lists general parameters for DSI Patterned Filters

Parameter	Specifications*
Line Width	2 μm
Dimensional Accuracy	+ 1.0 μm
Feature Placement	+ 1.0 μm
Front to Back Alignment	+ 10 μm
Smallest Substrate Size	6.35 mm x 6.35 mm
Largest Substrate Size	150 mm
Substrate Thickness	0.0762 mm up to 4 mm

*The above specifications are to be used as nominal values only. Filter complexity, physical thickness and uniformity requirements need to be considered before actual values can be determined.

All patterns and optical thin films are designed for specific applications. DSI engineers work closely with customers to design the optimal combination of performance, delivery, and cost. Let us engineer a solution for you.



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