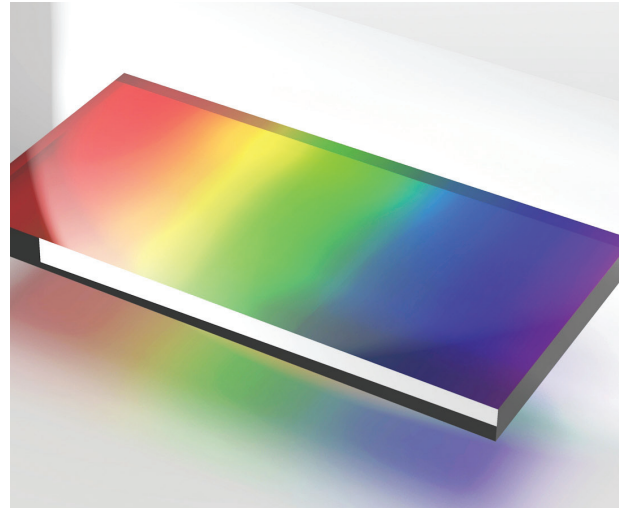


Linearly Variable Bandpass and Edge Filters

These are spatially variable response coatings, in which the center wavelength of operation changes with position in a linear manner over the surface of the part. In the past, high manufacturing costs for this class of filters has limited their use to a few specialized applications, typically in spectrometry and temperature sensing. But now, REO has developed a unique, proprietary, volume scalable technology which enables cost effective production of linearly variable filters over a wide range of sizes.

REO currently offers bandpass filters for operation in the visible (380 nm – 760 nm), near infrared (600 nm – 1100 nm) and mid-infrared (1.3 μm – 2.6 μm) spectral ranges. Nominal bandwidth is 1% (FWHM) of the center wavelength, with a peak transmission of 60% and a linearity of $\pm 0.5\%$. These can be delivered on a wide array of optical glass, fused silica, as well as other substrate materials in the 3 mm x 1.5 mm (L x W) to 150 mm x 65 mm size range. Short wave pass and long wave pass edge filters are also available over the same spectral range and substrate sizes. All these filters are fabricated using ion beam sputtering (IBS) technology in order to minimize scatter and absorption, and to make coating response totally insensitive to changes in temperature and humidity.



In addition to the product detailed here, REO can produce a wide range of other linearly variable filter configurations on a custom basis.

Typical Bandpass Filter Specifications

Materials	Optical glass, fused silica, silicon, sapphire
Wavelength Ranges	380 nm – 760 nm 600 nm – 1100 nm 1.3 μm – 2.6 μm
Transmitted wavefront distortion	$\lambda/10$
Peak Transmission	60%
Bandwidth (FWHM)	1% of center wavelength
Linearity	$\pm 0.5\%$
Attenuation	0.1%
Temperature range	-196 °C to 400 °C
Humidity range	0 to 100%
Size range (length)	3 mm to 150 mm
Surface Quality	20-10
Clear Aperture	90%