

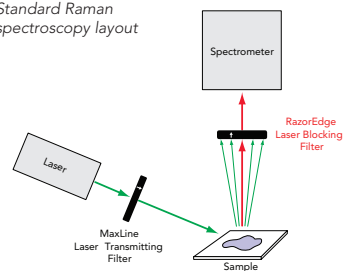
TECHNICAL NOTE

RazorEdge Filter Layouts

Only the unique RazorEdge Dichroic beamsplitter reflects a standard laser line incident at 45° while transmitting longer Raman-shifted wavelengths with an ultrasteep transition far superior to anything else available on the open market. The guaranteed transition width of < 1% of the laser wavelength for U-grade (regardless of polarization) makes these filters a perfect match to our popular normal-incidence RazorEdge ultrasteep long-wave-pass filters. These beamsplitters are so innovative that they are patent pending.

In order for the two-filter configuration to work, the 45° beamsplitter must be as steep as the laser-blocking filter. Traditionally thin-film filters could not achieve very steep edges at 45° because of the “polarization splitting” problem – the edge position tends to be different for different polarizations of light. However, through continued innovation in thin-film filter technology, Semrock has been able to achieve ultrasteep 45° beamsplitters with the same steepness of our renowned RazorEdge laser-blocking filters: the transition from the laser line to the passband of the filter is guaranteed to be less than 1% of the laser wavelength (for U-grade filters).

Standard Raman spectroscopy layout



Imaging system with high-NA collection optics

