



BragGrate™ - Notch Filter (BNF)

Ultra Narrow ($<10 \text{ cm}^{-1}$) Bandstop Filter for Rayleigh light suppression

Product Description



BragGrate™ Notch Filter (BNF) is a reflective volume Bragg grating recorded in a bulk of photosensitive silicate glass. BNF reflects light with bandwidth as narrow as 5 cm^{-1} while all other wavelength pass unaffected with total transmission as good as 95%. BNFs enable Stokes and Anti-Stokes Raman spectra measurements $< 5 \text{ cm}^{-1}$ from the laser line.

The filters are stable to light powers exceeding 1 kW, temperatures up to 450°C , and are fully environmentally stable. The central wavelengths can be controlled with accuracy $0.1\text{-}0.5 \text{ nm}$ and can be angle tuned up to 10 nm .

Standard Parameters

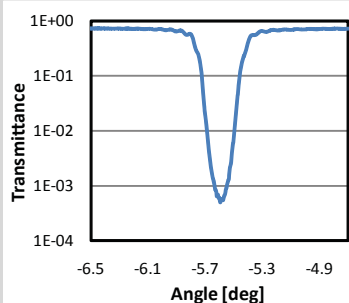
Center Wavelength: 488, 514, 532, 633, 785, 1064 nm

Spectral Bandwidth (FWHM): $< 7 \text{ cm}^{-1}$

Attenuation: 90; 99%; 99.9% (OD1; OD2; OD3)

Lateral Dimensions: $12.5 \times 12.5 \text{ mm}^2$

Thickness: 1-4 mm



Transmission spectrum of 3-mm thick BragGrate™ Notch Filter with $12 \times 12 \text{ mm}^2$ clear aperture at 488 nm.

Applications

BragGrate Notch Filters are ideal for Raman spectroscopy applications and enable low wavenumber measurements down to 5 cm^{-1} .

Specifications

Attenuation: 90-99.99% (OD1-4)

Spectral bandwidth: 20 pm to 20 nm

Operating range: 350-2700 nm

Grating Thickness: 1-5 mm

Apertures: up to $25 \times 25 \text{ mm}^2$

Angular selectivity: 10-100 mrad

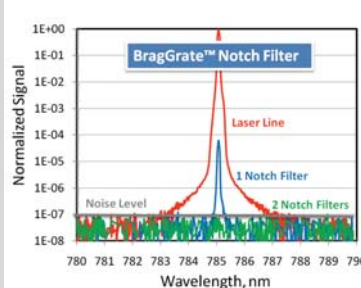
Incident/Diffracted Angles: 0-30 deg

Grating to surface tilt angle: 0-10 deg

Transmission ripple: $< 1\%$ at $\pm 0.5 \text{ nm}$ from laser line (@ 633 nm)

Advantages & Features

- Very narrow rejection bandwidth $< 5 \text{ cm}^{-1}$
- Allows measuring Raman Stokes and anti-Stokes modes
- No degradation in high power light
- Environmentally stable: temperatures up to 450°C ; no humidity effects
- No polarization dependence
- Monochromator linewidth in small-size notch filters



Attenuation of 785 nm laser line with 1 and 2 BragGrate™ Notch Filters.

OptiGrate Corp is a 10-year old, privately owned company which designs and manufactures a full range of BragGrate™ holographic optical elements (volume Bragg gratings) in inorganic photosensitive silicate glass. OptiGrate supplies custom build, as

well as volume orders of diffractive optical components to hundreds of customers on 5 continents. This technology is protected by a portfolio of issued and pending patents.