OptiGRATE
HIGH EFFICIENCY FOR HIGH POWER

BragGrate™- Spatial Filter (BSF)

Reflecting Volume Bragg Grating for spatial filtering

Product Description

Spacial filters are used to "clean up" laser beams from side fringes or spatially varing intensity noise caused by imperfection in laser optics and variations in laser gain medium. Standard solution for spatial filtering deploys optical pinholes with focusing and collimating optics to separate Gaussian beam from the side fringes.

BragGrate™ Spatial Filter (BSF) provides a simple, compact, and cost effective solution for laser beam spatial filtering. BSF is based on a reflecting volume Bragg grating with narrow acceptance angle that enables filtering of laser beams with a single element without additional optics and can replace pinhole assemblies. In addition to spatial filtering BSFs provide ultra-narrow line spectral filtering and can be used for high-power/high-energy applications

Specifications

Diffraction Efficiency (DE): 90-95%
Spatial Noise Suppression: up to 30 dB
Center Wavelength Range: 400-2300 nm
Center Wavelength Tunability (angle tuning): up to 50 nm
Filter Thickness: 2-5 mm
Deflection Angles: 5-90 deg
Lateral Dimensions: up to 25×25 mm^2

Standard Parameters

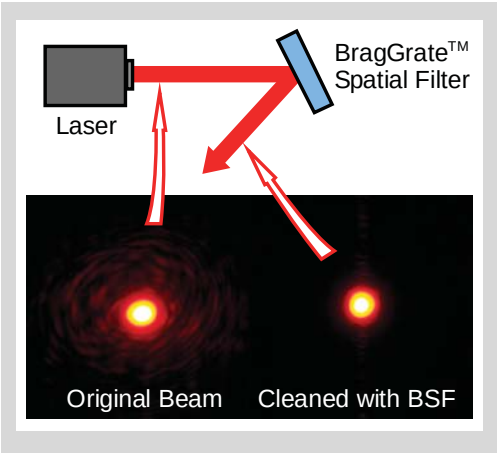
Center Wavelength: 405, 488, 514, 532, 633, 785, 1064 nm
Lateral Dimensions: 5×5 mm^2
Thickness: ~3 mm
Angular Acceptance (FWHM): < 5 mrad
Deflection Angle: 20 deg
Aluminum Housing with 0.5" or 1" Outer Diameter

Advantages & Features

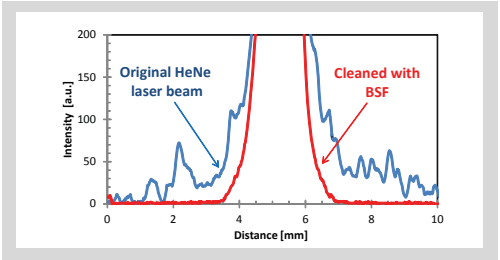
- Spacial filtering without refocusing and pinhole assembly
- Highly cost effective and small footprint
- Easy alignment by angle tuning in standard kinematic mount
- Compatible with high-power operations over 1 kW
- Compatible with high-energy operations up to 5 J/cm^2
- Simultanious spatial and spectral filtering (<5 cm^{-1} to laser line)
- Supports operation at temperatures up to 400 C

Applications

- Filtering of spatial noise in laser beams
- Ultra-narrow linewidth spectral filtering of laser beams
- ASE filters for diode laser sources
- Wavelength-tunable spatial and spectral filters



Spacial filtering of 632.8 nm HeNe laser with BSF



632.8 nm HeNe laser beam profile before and after BSF cleaning

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OptiGrate Corp designs and manufactures a full range of BragGrate™ holographic optical elements (volume Bragg gratings) in inorganic photosensitive silicate glass. OptiGrate pioneered commercial VBG technology and supplied VBG-based diffractive optical components to hundreds of customers on 5 continents. This technology is protected by a portfolio of issued and pending patents.