



## BragGrate™ - Deflector

Transmitting Volume Bragg Grating for angular selection and magnification

### Product Description

BragGrate™ Deflector is a transmitting volume Bragg grating (TBG) recorded in a bulk of photosensitive silicate glass. The Deflector acts as a very narrow band selector in angular and spectral spaces and, therefore, enables spectrally selective beam steering and angular magnification. The achievable spectral filtering is as narrow as 0.1 nm with easily achievable deflection angles up to 45 deg. The grating is embedded inside the glass material and is stable to light powers exceeding 1 kW, temperatures up to 400°C, and is environmentally stable.

### Standard Parameters

Center Wavelength: 532, 1064, 1550 nm

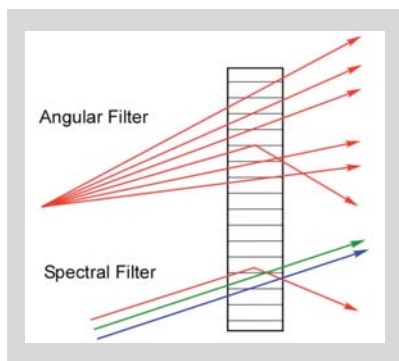
Spectral Bandwidth (FWHM): 1-10 nm

Diffraction Efficiency: > 97%

Lateral Dimensions: 12.5×12.5, 25×25, 35×35 mm<sup>2</sup>

### Applications

- 3D beam steering
- Angular magnification in fast switches
- Transmitting spectral and angular selector
- Beam combining
- Beam shaping and filtering



Schematics of a spectral and angular filters with BragGrate™ Deflector. Narrow spectral or angle selection is rejected from the incident beam.

### Specifications

Diffraction Efficiency (DE): 5-99%

Spectral Bandwidth: 0.5 nm to 100 nm

Operating Range  $\lambda$ : 400-2700 nm

Grating Thickness: 0.50-10 mm

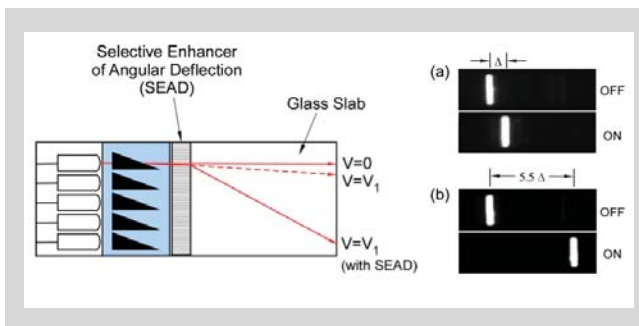
Apertures: up to 50×50 mm<sup>2</sup>

Angular Selectivity: 0.1-100 mrad

Total Deflection Angles: <120 deg

### Advantages & Features

- High power operations over 1 kW
- High energy operations up to 5 J/cm<sup>2</sup>
- No degradation over lifetime
- Superior environmental stability
- High angular selectivity
- No polarization dependence at small incident angles
- Near-diffraction-limited beam quality
- Possible multiplexing of different angular selectors in one volume
- Low wavefront aberrations



Angular magnification with BragGrate™ Deflector in electro-optic switches (Courtesy of Fujitsu Ltd. IEEE Phot. Tech. Lett. 19, p. 701 (2007))



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.