

## 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 from 0 to 45 deg. The grating is embedded inside the glass material and is stable to light powers exceeding 1 kW, temperatures >400C, and is fully environmentally stable.

#### Standard Parameters

Center Wavelength: 532, 1064, 1550 nm

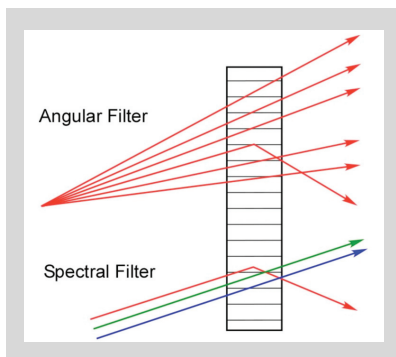
Spectral Bandwidth (FWHM): 10 nm

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 50 nm

Operating Range  $\lambda$ : 320–2700 nm

Grating Thickness: 0.50–5 mm

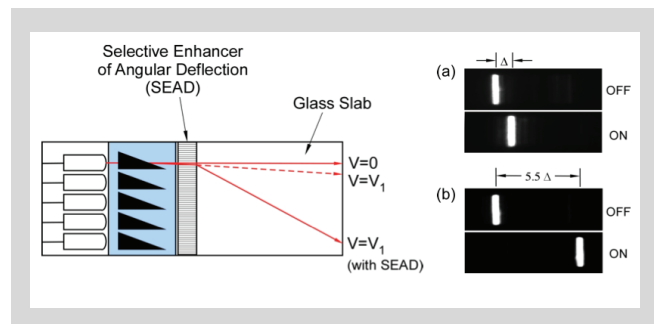
Apertures: up to 50×50 mm

Angular Selectivity: 1–100 mrad

Deflection Angles: –90+90 deg

#### Advantages & Features

- High powered operations over 1 kW
- High energy operations up to 5 J/cm<sup>2</sup>
- No degradation over lifetime
- Superior environmental stability
- Very high angular selectivity
- Very high spectral selectivity
- No polarization dependence at small incident angles
- Nearly Diffraction Limited Beam Quality
- 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 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.