

## BragGrate™ - Combiner

Transmitting or reflecting volume Bragg gratings for spectral beam combining

### Product Description

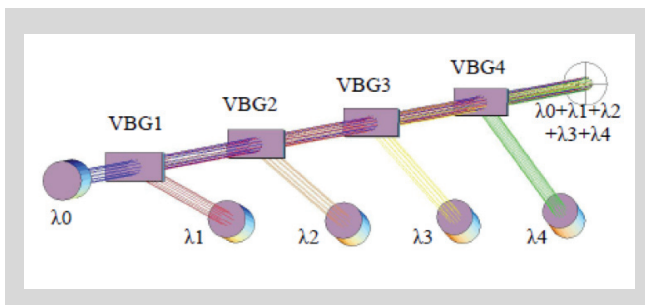
BragGrate™ Combiner is a transmitting or reflecting volume Bragg grating (or set of gratings) enabling Spectral Beam Combining (SBC) of laser radiation from multiple sources with offset wavelengths into a single near-diffraction limited beam with increased energy brightness. SBC by means of BragGrate™ Combiners recorded in photo-thermo-refractive (PTR) glass is a simple and robust technique for combining high-power laser radiation. Excellent mechanical properties and a refractive index, independent of temperature, enable the Combiners to withstand high-power laser radiation, thus making them ideal elements for high-powered SBC.

### Standard Parameters

Center Wavelength: 930–980, 1030–1100 nm  
Spectral Bandwidth (FWHM): 0.2 nm  
Diffraction Efficiency 97%  
Lateral Dimensions: 15x15 mm

### Applications

High powered spectral beam combining. Latest achievements: 5 beam combining with total output power of 780 W, combining efficiency of > 90%



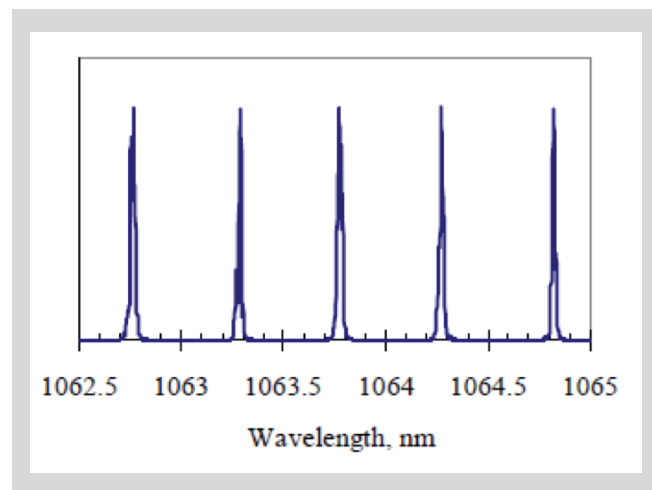
Spectral beam combining scheme with 4 BragGrate™ Combiners

### Specifications

Diffraction Efficiency (DE): 90–99%  
Spectral Bandwidth: 50 pm to 20 nm  
Operating Range  $\lambda$ : 400–2700 nm  
Grating Thickness: 0.50–10 mm  
Apertures: up to 50x50 mm  
Angular Selectivity: 10–100 mrad  
Deflection Angles: 5–45 deg

### Advantages & Features

- High powered operations up to 10 kW
- High energy operations up to 5 J/cm<sup>2</sup>
- Unrestricted lifetime, no degradation of parameters has been detected for 10 years
- Very high angular selectivity
- Very high spectral selectivity
- Superior environmental stability
- No polarization dependence at small incident angles
- Nearly Diffraction Limited Beam Quality



Spectrum of spectrally-combined output beam with total power of 780 W and record spectral density

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.