

BragGrate™ - Mirror Reflecting Bragg Grating (RBG) for laser mode selection

Product Description

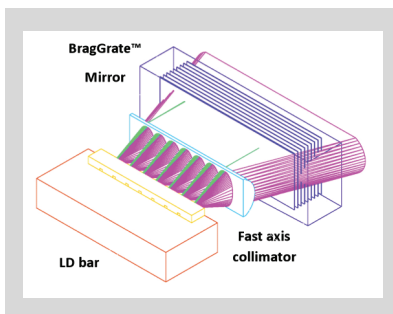
The BragGrate™ Mirror is reflective volume Bragg gratings recorded in bulk of photosensitive silicate glass. BragGrate™ Mirrors placed in a laser resonator enable spectral and thermal management of the laser radiation and can withstand high optical densities up to 5 J/cm². The laser modal structure is controlled by the longitudinal mode selection with the bandwidth down to 20 pm and the customized central wavelengths with accuracy 0.1–0.5 nm. BragGrate™ Mirrors have record low absorption and allow thermal laser wavelength shift reduction to 0.005 nm/K.

Standard Parameters

Center Wavelength: 405, 785, 976, 1064, 1532, 1908 nm
Spectral Bandwidth (FWHM): 0.2 nm
Diffraction Efficiency 10, 20, 50, 99 %
Lateral Dimensions: 1.5×2, 1.5×12, 5×5 mm
Thickness 1, 2.5, 4.0 mm

Applications

- Solid-state lasers
- High powered laser diodes
- Narrow line spectroscopic laser sources (e.g. Raman)
- Fiber Lasers
- Narrow band output coupler
- Laser radars, LIDARS, etc...



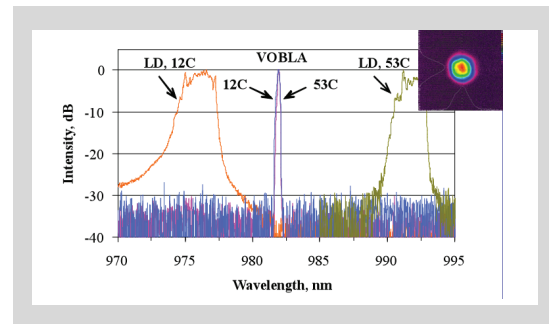
Schematics of LD bar stabilization with a BragGrate™ Mirror.

Specifications

Diffraction Efficiency (DE): 3–99.7%
Spectral Bandwidth: 20 pm to 20 nm
Wavelength Range: 320–2700 nm
Grating Thickness: 0.50–20 mm
Apertures: up to 35×35 mm
Angular Selectivity: 1–100 mrad
Incident/Output Angles: 0–45 deg
Grating to Surface Tilt Angle: 0–10 deg
Absorption/Scattering Losses: <1%

Advantages & Features

- High power operations, over 1 kW
- High energy operations up to 5 J/cm²
- No power penalty
- Unrestricted lifetime, no degradation of parameters has been detected for 10 years
- Narrowing of laser line down to few tens pm with superior thermal stability
- Environmental stability
- No polarization dependence
- Unique solutions to achieve SFM oscillations
- Nearly Diffraction Limited Beam Quality



Normalized spectra of 2W free running LD and with BragGrate™ Mirror feedback at different T. Linewidth of LD in external Bragg cavity was < 45 pm. Insert: reflected mode profile with a 10% DE BragGrate™ Mirror

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.