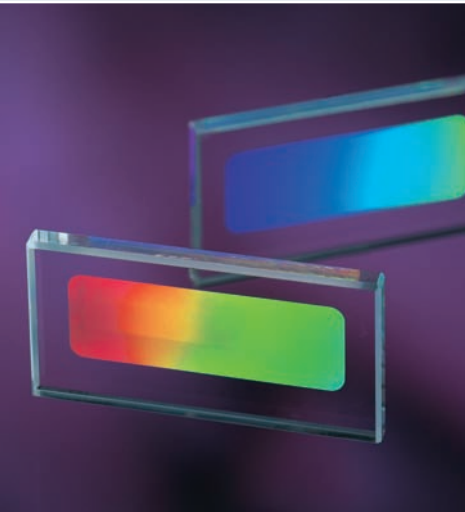




# Rectangular Phase Mask



### Features

- Rectangular substrate allows for easy alignment
- Grating lengths from 20.0 mm to 45.0 mm
- Holographically recorded

### Applications

- Dense wavelength division multiplexing (DWDM) filters, and add/drop modules
- Frequency lockers and pump stabilizers
- Chirped phase masks used to manufacture gain-flattening filters for erbium-doped fiber amplifiers

### Technical Specifications

|                                             |                                                                                                                                                                                                                                        |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Wavelength (nm)                   | 190 to 1550                                                                                                                                                                                                                            |
| Phase Mask Period ( $\mu\text{m}$ )         | 0.4 to 5                                                                                                                                                                                                                               |
| Period Manufacturing Tolerance (nm)         | $\pm 0.1$ for unchirped masks ( $\pm 0.01$ optional)                                                                                                                                                                                   |
| Period Measurement Accuracy (nm)            | $\pm 0.02$                                                                                                                                                                                                                             |
| Dimensions                                  | Substrate size/Aperture<br>17.2 mm x 24.5 mm/10 mm x 20 mm<br>17.2 mm x 38.1 mm/10 mm x 34 mm<br>17.2 mm x 50.8 mm/10 mm x 45 mm<br>Custom sizes optional                                                                              |
| Chirp Range (for chirped masks)(nm/cm)      | 0.03 to 40                                                                                                                                                                                                                             |
| Diffraction Efficiency (%)                  | $\leq 3$ in 0 <sup>th</sup> order; $\geq 33$ in $\pm 1^{\text{st}}$ order (RPM)<br>$\leq 5$ in 0 <sup>th</sup> order; $\geq 30$ in $\pm 1^{\text{st}}$ order (RPMC)<br>for the periods between 0.7 $\mu\text{m}$ and 1.2 $\mu\text{m}$ |
| Damage Threshold ( $\text{J}/\text{cm}^2$ ) | Better than 1 per pulse at 50 Hz at 248 nm                                                                                                                                                                                             |
| Material                                    | Corning 7980, Suprasil                                                                                                                                                                                                                 |
| Substrate Flatness                          | $\lambda$ at 248 nm, both sides                                                                                                                                                                                                        |
| Scratch and Dig                             | 20 to 10                                                                                                                                                                                                                               |
| AR Coating                                  | Optional                                                                                                                                                                                                                               |
| Wedge (arcsec)                              | $< 30$                                                                                                                                                                                                                                 |
| Thickness (mm)                              | 3.175 $\pm$ 0.125                                                                                                                                                                                                                      |

For chirped masks: center period precision:  $\pm 0.5$  nm with  $\pm 200$   $\mu\text{m}$  center positioning error.

---

## Rectangular Phase Mask

---

### Ordering Information

RPM (RPMC if chirped) - <wavelength of laser> -  
<mask period> - <(grating dimension (W x L)) substrate dimension (W x L)>

*Example:* a 17.2 mm x 25.4 mm dimension phase mask to be used with a  
KrF excimer laser at 248 nm with a period of 1.0600  $\mu\text{m}$ , is specified as:

RPM - 248 - 1.0600 - (10 x 20) 17.2 x 25.4

*Example for 8 nm/cm chirped mask:*

RPMC - 248 - 1.0600 - (10 x 20) 17.2 x 25.4 - 8 nm/cm



Phasemask Technology, LLC  
48521 Warm Springs Blvd., Suite 301  
Fremont, CA 94539, USA  
Tel.: 408-718-1513  
Email: [Sales@phasemask.com](mailto:Sales@phasemask.com)