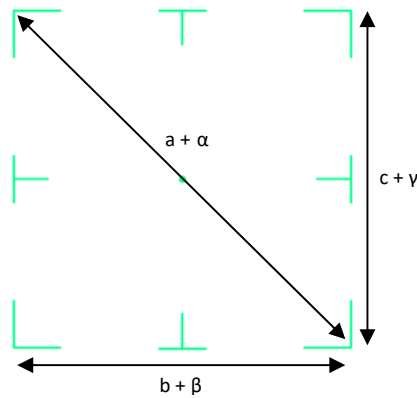


# DE-R 394 Diffractive Optical Element



- **Element Number: DE-R 394**
- **Current Product Revision: A**
- Description: Viewfinder
- Substrate material: Polycarbonate (PC)
- Size (Ø x Thickness): 8 x 0.63 mm
- Design wavelengths: 520 nm
- Recommended wavelength range: 500-540 nm
- Minimum recommended beam diameter: 2 mm

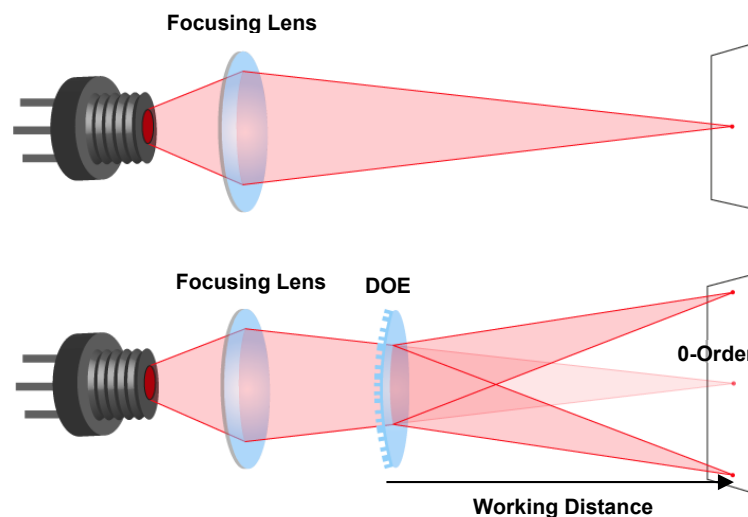
This Large-angle pattern is subject to geometrical distortion due to its symmetry properties, if the DOE is used at laser wavelengths significantly different ( $\Delta\lambda > 50\text{nm}$ ) from the design wavelength. Pattern size and pattern angles and the intensity in the undiffracted central spot ('zero order intensity', see reverse page) will vary most with the wavelength.

Diffraction efficiencies given on this datasheet have been measured using elements of product revision A.

## Geometry and Diffraction Angles

Wavelength $\lambda$ [nm]	Pattern Size @ 100 mm Distance			Pattern Angles		
	a [mm]	b [mm]	c [mm]	$\alpha$ [°]	$\beta$ [°]	$\gamma$ [°]
405	69.9	49.4	49.4	38.5	27.8	27.8
447	78.2	55.3	55.3	42.7	30.9	30.9
<b>520</b>	<b>93.5</b>	<b>66.1</b>	<b>66.1</b>	<b>50.1</b>	<b>36.6</b>	<b>36.6</b>
532	96.2	68.0	68.0	51.4	37.6	37.6
640	122.2	86.4	86.4	62.9	46.7	46.7
687	135.1	95.5	95.5	68.1	51.1	51.1
752	155.0	109.6	109.6	75.6	57.5	57.5

## Setup



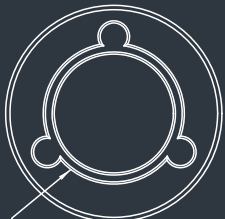
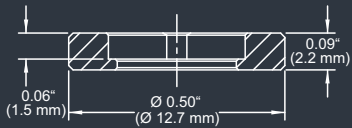
Laser diodes are the most common light source to be used with diffractive optical elements, but other laser light sources may also be used.

The DOEs are best used with collimated or convergent laser sources. The microstructure surface should be oriented towards the laser.

The 0-order spot is equivalent in size and shape to the original beam, but its power is attenuated.

### MOUNTED VERSION

For testing or setups under laboratory conditions we offer a version mounted in 12.7 mm stainless steel frame for use with standard laboratory holders.



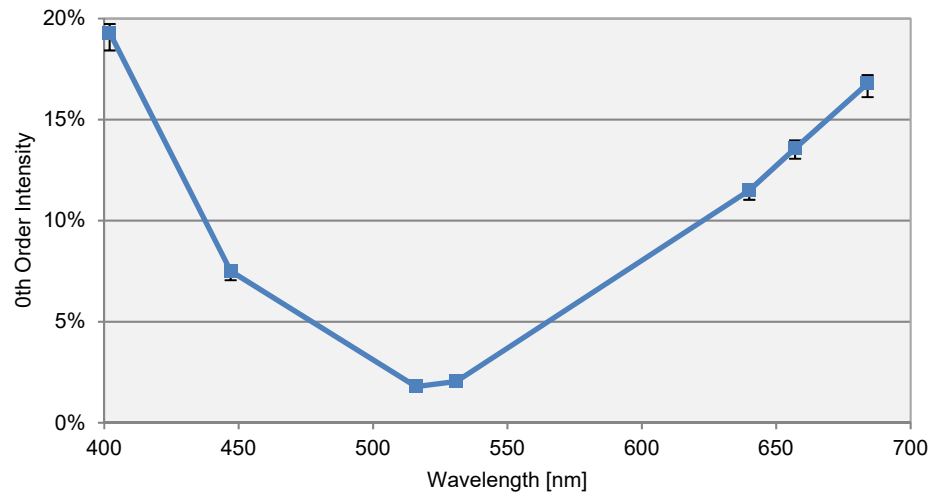
### COLLIMATED / CONVERGING LASER

The laser can be collimated for long range use or converging for a fixed working distance.

Please note that the size/thickness of each spot or line depends on the focusing of the laser.

## Diffraction Zero Order Intensity:

Wavelength	0-Order Intensity
402 nm	19.3%
447 nm	7.5%
516 nm	1.8%
531 nm	2.0%
640 nm	11.5%
657 nm	13.6%
684 nm	16.8%



HOLOEYE Photonics AG  
Volmerstr. 1  
12489 Berlin, Germany  
contact@holoeye.com  
www.holoeye.com