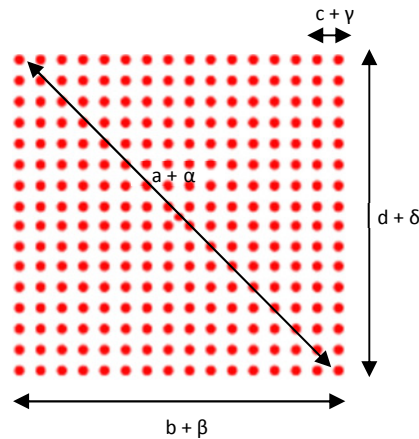


# DE-R 242 Diffractive Optical Element



- **Element Number:** DE-R 242
- **Current Product Revision:** B
- **Description:** Matrix 16 x 16 Dots
- **Number of Dots:** 256 + 1 Dots
- **Substrate material:** Polycarbonate (PC)
- **Size (Ø x Thickness):** 8 x 1.2 mm
- **Design wavelengths:** 635 nm
- **Recommended wavelength range:** 530-730 nm
- **Minimum recommended beam diameter:** 0.5-1 mm

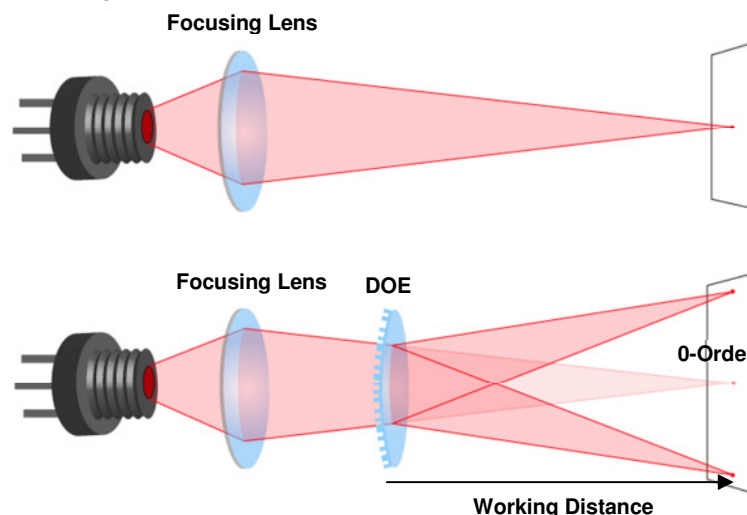
Pattern size and pattern angles and the intensity in the undiffracted central spot ('zero order intensity', see reverse page) will vary most with the wavelength. Within the recommended wavelength range, the element shows the lowest intensity in the central spot.

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

## Geometry and Diffraction Angles

Wavelength	Pattern Size @ 100 mm Distance				Pattern Angles			
	a	b	c	d	α	β	γ	δ
450 nm	8.8 mm	6.2 mm	0.41 mm	6.2 mm	5.0°	3.6°	0.24°	3.6°
515 nm	10.1 mm	7.1 mm	0.47 mm	7.1 mm	5.8°	4.1°	0.27°	4.1°
532 nm	10.4 mm	7.4 mm	0.49 mm	7.4 mm	6.0°	4.2°	0.28°	4.2°
635 nm	12.4 mm	8.8 mm	0.59 mm	8.8 mm	7.1°	5.0°	0.34°	5.0°
650 nm	12.7 mm	9.0 mm	0.60 mm	9.0 mm	7.3°	5.1°	0.34°	5.1°
730 nm	14.3 mm	10.1 mm	0.67 mm	10.1 mm	8.2°	5.8°	0.39°	5.8°
780 nm	15.3 mm	10.8 mm	0.72 mm	10.8 mm	8.7°	6.2°	0.41°	6.2°
808 nm	15.8 mm	11.2 mm	0.75 mm	11.2 mm	9.1°	6.4°	0.43°	6.4°

## Setup



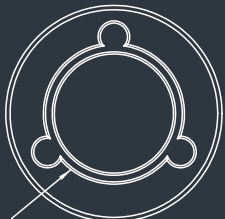
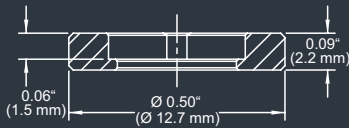
Laser diodes are the most common light source to be used with diffractive optical elements, but other laser light sources may also be used.

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.



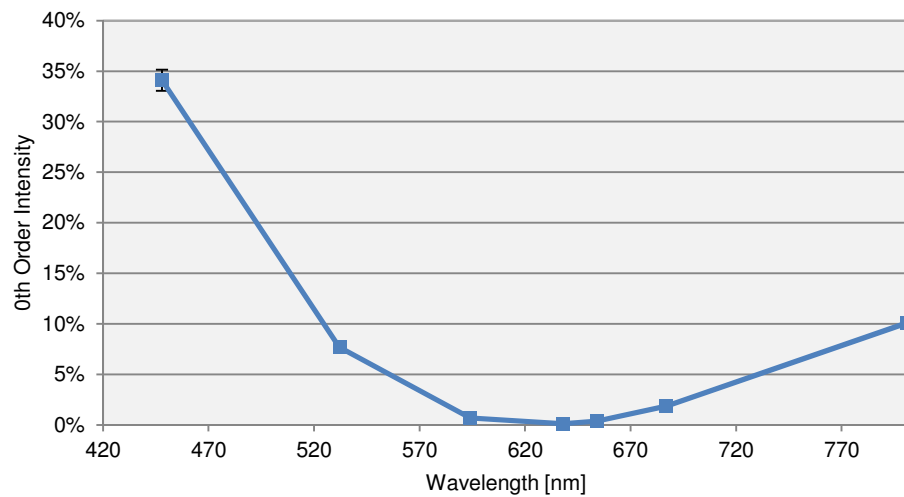
### COLLIMATED / CONVERGING LASER

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
448	34%
532	7.7%
594	0.7%
638	0.1%
654	0.4%
687	1.9%
801	10.1%



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