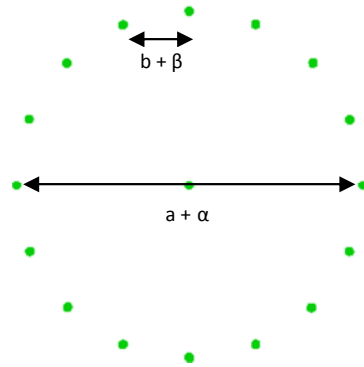


# DE-R 220 Diffractive Optical Element



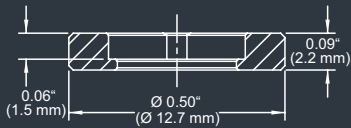
- **Element Number:** DE-R 220
- **Current Product Revision:** A
- **Description:** 1 : 16 Dot Circle
- **Number of Dots:** 16 + 1 Dots
- **Substrate material:** Polycarbonate (PC)
- **Size (Ø x Thickness):** 8 x 1.2 mm
- **Design wavelengths:** 515 nm
- **Recommended wavelength range:** 480-532 nm
- **Minimum recommended beam diameter:** 0.5-1.0 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. At the optimum wavelength given on this datasheet, the element shows the lowest intensity in the central spot.

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

## 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

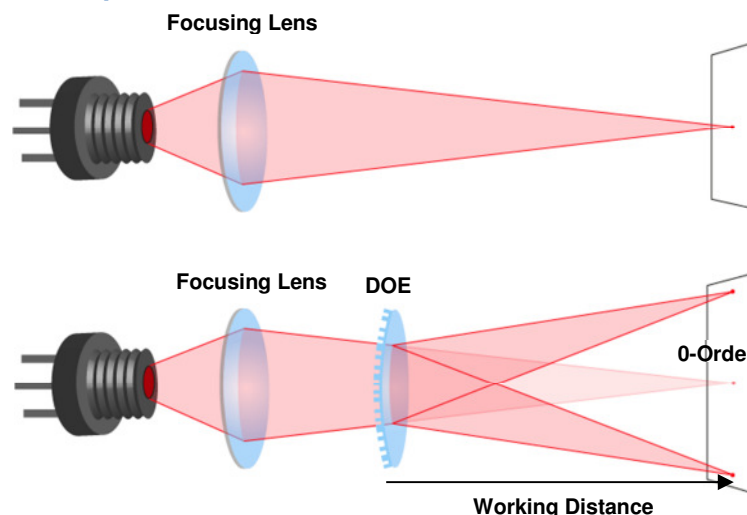
The laser can be collimated for long range use or converging for a fixed working distance.

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

## Geometry and Diffraction Angles

Wavelength	Pattern Size @ 100 mm Distance		Pattern Angles	
	a	b	$\alpha$	$\beta$
450 nm	70 mm	13.8 mm	39°	7.9°
488 nm	77 mm	15.1 mm	42°	8.6°
520 nm	83 mm	16.3 mm	45°	9.3°
532 nm	85 mm	16.7 mm	46°	9.6°
594 nm	97 mm	19.1 mm	52°	10.9°
635 nm	106 mm	20.8 mm	56°	11.9°
650 nm	109 mm	21.4 mm	57°	12.2°
730 nm	127 mm	25.0 mm	65°	14.3°

## Setup



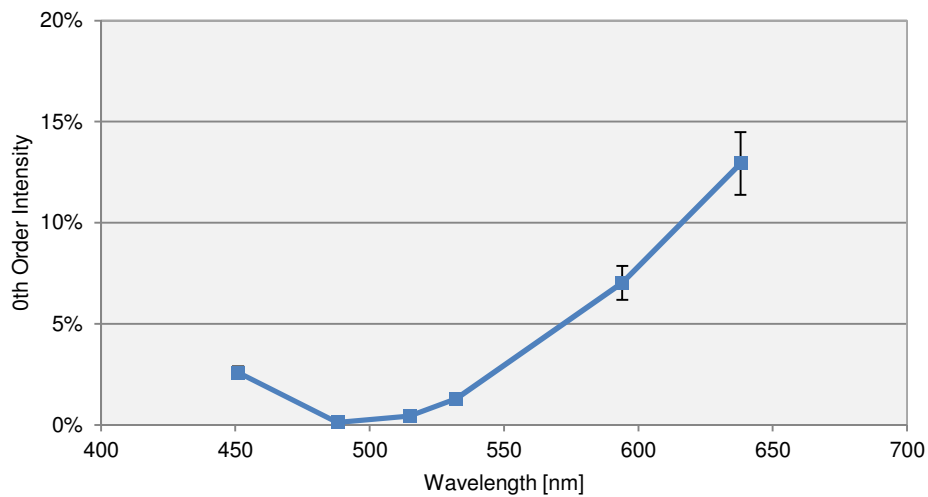
Laser diodes are the most common light source to be used with diffractive optical elements, but other laser light sources may also be used.

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.

## Diffraction Zero Order Intensity:

Wavelength	0-Order Intensity
451	2.6%
488	0.1%
515	0.4%
532	1.3%
594	7.0%
638	12.9%



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