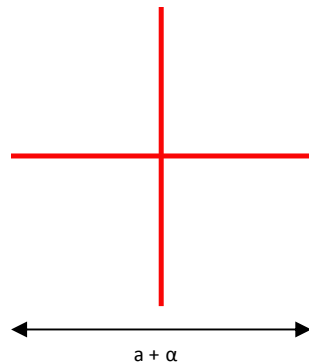


DE-R 247 Diffractive Optical Element



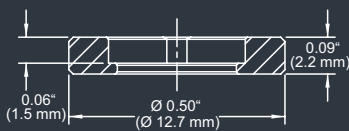
- **Element Number:** DE-R 247
- **Current Product Revision:** A
- **Description:** Cross – 25 @ 645
- **Number of Spots on Line:** 1051
- **Substrate Material:** Polycarbonate (PC)
- **Size (Ø x Thickness):** 8 x 1.2 mm
- **Design Wavelengths:** 645 nm
- **Recommended Wavelength Range:** 600-800 nm
- **Minimum Recommended Beam Diameter:** 2.5-3 mm

Within the recommended wavelength range, the zeroth order is not brighter than the rest of the cross. 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.

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.



Thorlabs 8 mm steel lens adapter

COLLIMATED / CONVERGING LASER

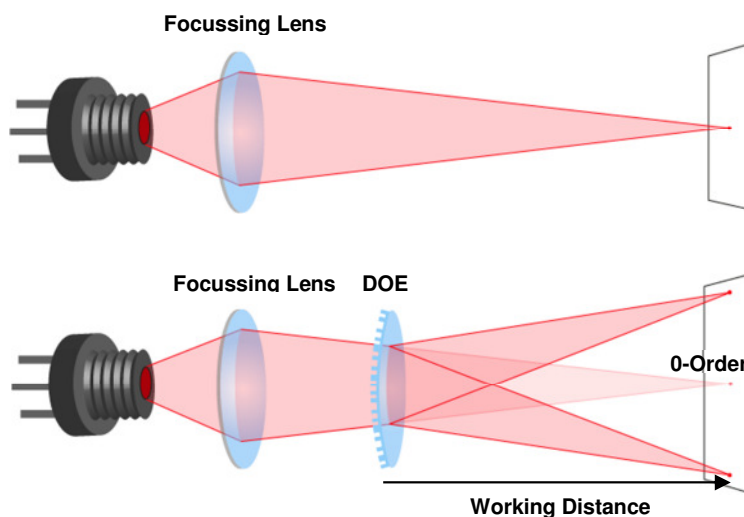
The laser can be collimated for long range use or converging for a fixed working distance.

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

Pattern Geometry and Diffraction Angles

Wavelength	Pattern Size @ 100 mm Distance	Pattern Angle
	a	α
450 nm	27 mm	17.4°
515 nm	35 mm	19.9°
532 nm	36 mm	21°
635 nm	44 mm	25°
650 nm	45 mm	25°
730 nm	51 mm	28°
780 nm	54 mm	30°
808 nm	56 mm	32°

Setup



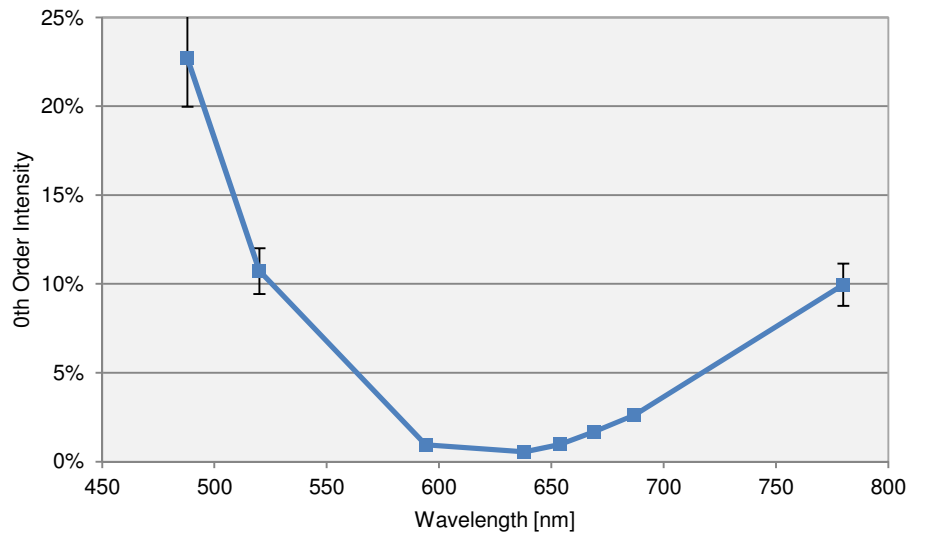
Laser diodes are the most common light source to be used with diffractive optical elements, but other laser light sources may also be used.

The DOEs are best 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
488	23%
520	11%
594	0.9%
638	0.6%
654	1.0%
669	1.7%
687	2.6%
780	10%



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