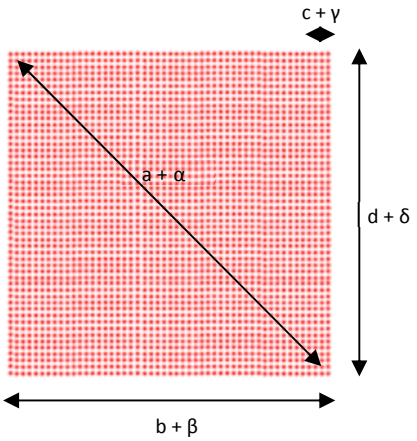
DE-R 257 Diffractive Optical Element

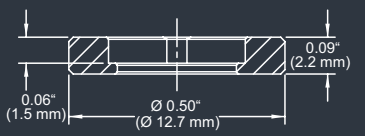


- **Element Number: DE-R 257**
- **Current Product Revision: B**
- Description: Matrix 51 x 51 Dots
- Number of Dots: 2601 Dots
- Substrate material: Polycarbonate (PC)
- Size (Ø x Thickness): 8 x 1.2 mm
- Design wavelengths: 660 nm
- Recommended wavelength range: 560-720 nm
- Minimum recommended beam diameter: 3.5-4 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. This Large-angle pattern is subject to geometrical distortion due to its symmetry properties, if the DOE is used at laser wavelengths significantly different (Δλ > 50nm) from the design wavelength. Within the recommended wavelength range, the zeroth order has a similar power than the off-axis beams of the dot matrix. Diffraction efficiencies given on this datasheet have been measured using elements of product revision B.

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.



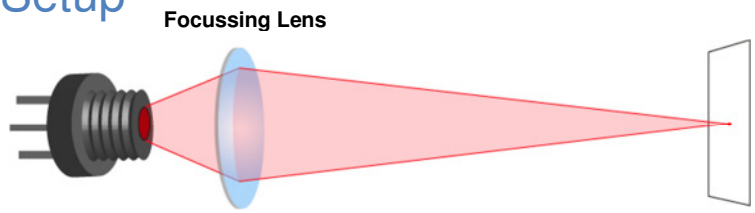
COLLIMATED / CONVERGING LASER

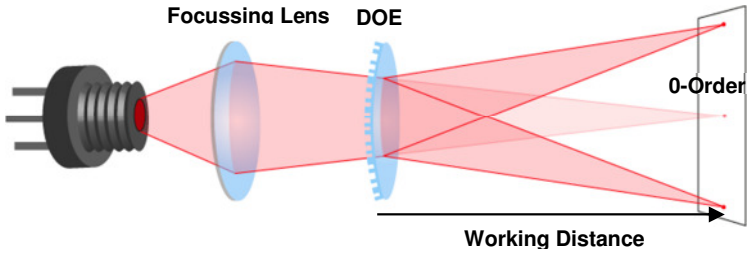
The laser can be collimated for long range use or converging for a fixed working distance. Please note that the size/thickness of each spot or line depends on the focusing of the laser.

Geometry and Diffraction Angles

Wavelength	Pattern Size @ 100 mm Distance				Pattern Angles			
	a	b	c	d	α	β	γ	δ
450 nm	38 mm	27 mm	0.54 mm	27 mm	22°	15.5°	0.31°	15.5°
515 nm	44 mm	31 mm	0.62 mm	31 mm	25°	17.7°	0.35°	17.7°
532 nm	45 mm	32 mm	0.64 mm	32 mm	25°	18.3°	0.37°	18.3°
635 nm	55 mm	39 mm	0.77 mm	39 mm	31°	22°	0.44°	22°
650 nm	56 mm	40 mm	0.79 mm	40 mm	31°	22°	0.45°	22°
730 nm	64 mm	45 mm	0.89 mm	45 mm	35°	25°	0.50°	25°
780 nm	68 mm	48 mm	0.96 mm	48 mm	38°	27°	0.54°	27°
808 nm	71 mm	50 mm	1.00 mm	50 mm	39°	28°	0.56°	28°

Setup





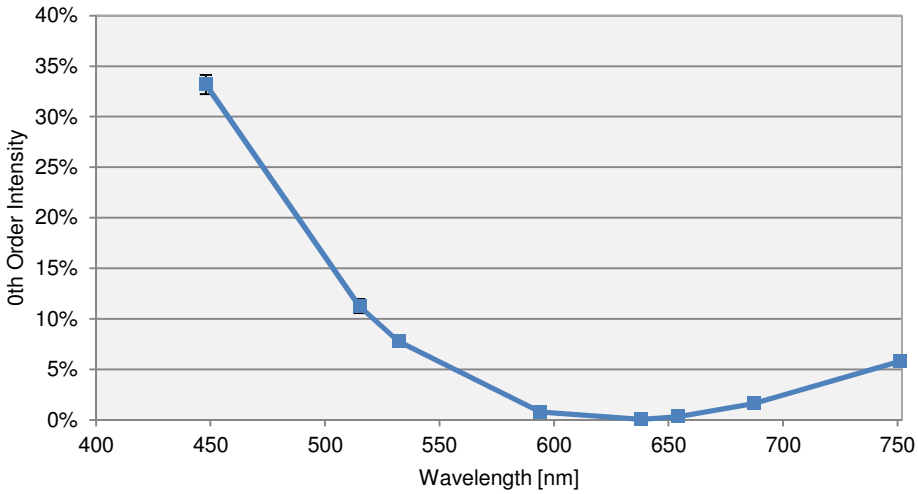
Laser diodes are the most common light source to be used with diffractive optical elements, but other laser light sources may also be used.

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
448	33.2%
515	11.3%
532	7.8%
594	0.8%
638	0.1%
654	0.3%
687	1.6%
751	5.8%



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