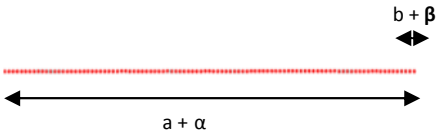
DE-R 337 Diffractive Optical Element



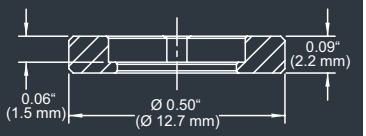
- **Element Number: DE-R 337**
- **Current Product Revision: A**
- Description: 1 : 99 Dot Line
- Number of Dots: 99 Dots
- Substrate Material: Polymethyl Methacrylate (PMMA)
- Size (Ø x Thickness): 8 x 1 mm
- Design Wavelengths: 635 nm
- Recommended Wavelength Range: 600 - 700 nm
- Minimum Recommended Beam Diameter: 0.5 mm

Within the recommended wavelength range, the zeroth order has a similar power than the off-axis beams of the dot line. Line width and line angles and the ratio between central spot and off-axis spots ('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

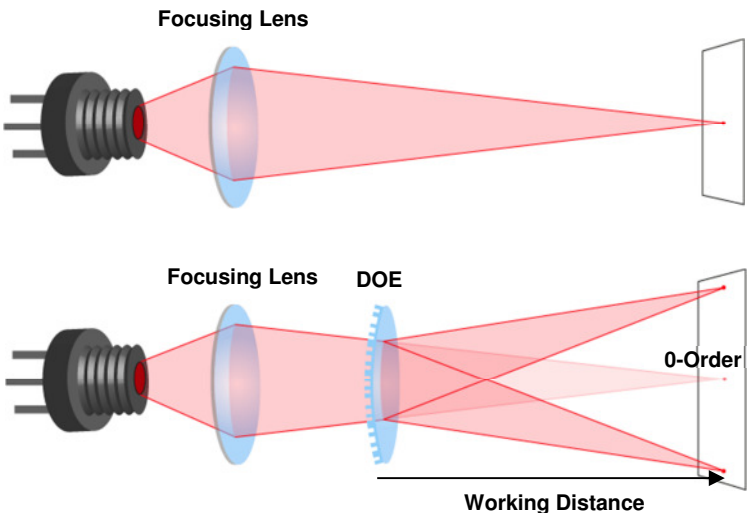
COLLIMATED / CONVERGING LASER

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.

Line Geometry and Diffraction Angles

Wavelength	Pattern Size @ 100 mm Distance		Pattern Angles	
	a	b	α	β
450 nm	34 mm	0.35 mm	19.5°	0.20°
515 nm	40 mm	0.40 mm	22.4°	0.23°
532 nm	41 mm	0.42 mm	23.1°	0.24°
635 nm	49 mm	0.50 mm	27.7°	0.28°
650 nm	51 mm	0.52 mm	28.4°	0.29°
670 nm	52 mm	0.53 mm	29.3°	0.30°
730 nm	57 mm	0.58 mm	31.9°	0.33°
780 nm	62 mm	0.63 mm	34.2°	0.35°
808 nm	64 mm	0.65 mm	35.5°	0.36°

Setup



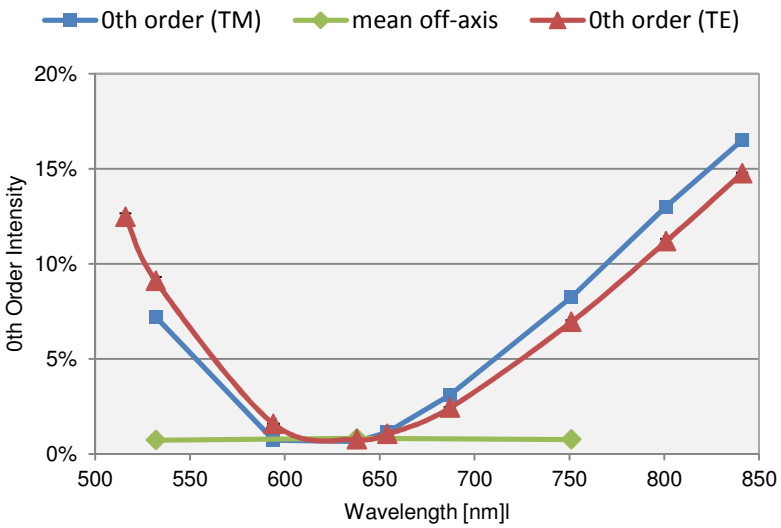
Laser diodes are the most common light source to be used with diffractive optical elements, but other laser light sources may also be used.

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 (TM)	0-Order Intensity (TE)	Mean OA intensity
516	10.2%	12.5%	
532	7.2%	9.1%	0.72%
594	0.7%	1.6%	
638	0.7%	0.8%	0.81%
654	1.1%	1.0%	
687	3.1%	2.4%	
751	8.2%	6.9%	0.76%
801	13.0%	11.2%	



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