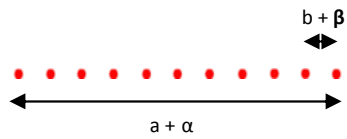


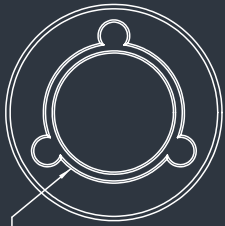
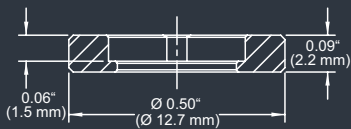
# DE-R 281 Diffractive Optical Element



- **Element Number: DE-R 281**
- **Current Product Revision: A**
- Description: 1 : 11 Dot Line
- Number of Dots: 11 Dots
- Substrate Material: Polymethyl Methacrylate (PMMA)
- Size (Ø x Thickness): 8 x 1 mm
- Design Wavelengths: 650 nm
- Recommended Wavelength Range: 600-730 nm
- Minimum Recommended Beam Diameter: 0.5 mm

## 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.



Ø 0.32" (Ø 8.0 mm)

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.

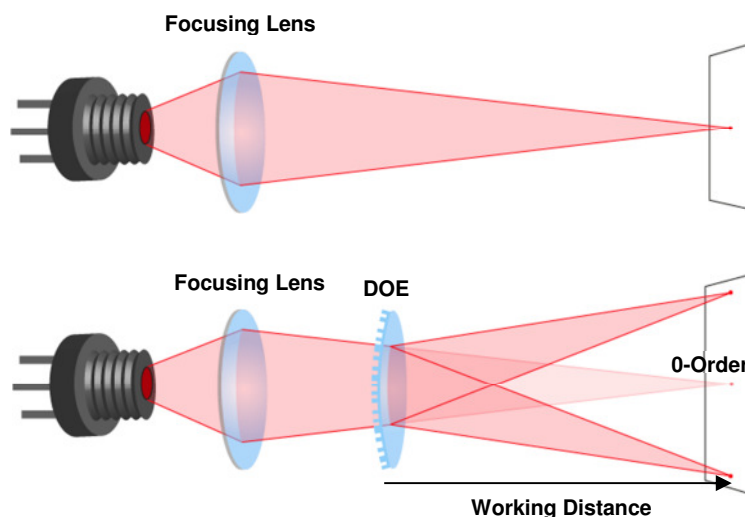
Within the recommended wavelength range, the zeroth order has a similar power than the off-axis beams of the dot line. Line width and line angles and the ratio between central spot and off-axis spots ('zero order intensity', see reverse page) will vary most with the wavelength.

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

## Line Geometry and Diffraction Angles

Wavelength	Pattern Size @ 100 mm Distance		Pattern Angles	
	a	b	$\alpha$	$\beta$
450 nm	20 mm	2.0 mm	11.4°	1.14°
515 nm	23 mm	2.3 mm	13.0°	1.30°
532 nm	24 mm	2.4 mm	13.5°	1.35°
635 nm	28 mm	2.8 mm	16.1°	1.61°
650 nm	29 mm	2.9 mm	16.5°	1.65°
670 nm	30 mm	3.0 mm	17.0°	1.70°
730 nm	33 mm	3.3 mm	18.5°	1.85°
780 nm	35 mm	3.5 mm	19.8°	1.98°
808 nm	36 mm	3.6 mm	20.5°	2.05°

## Setup



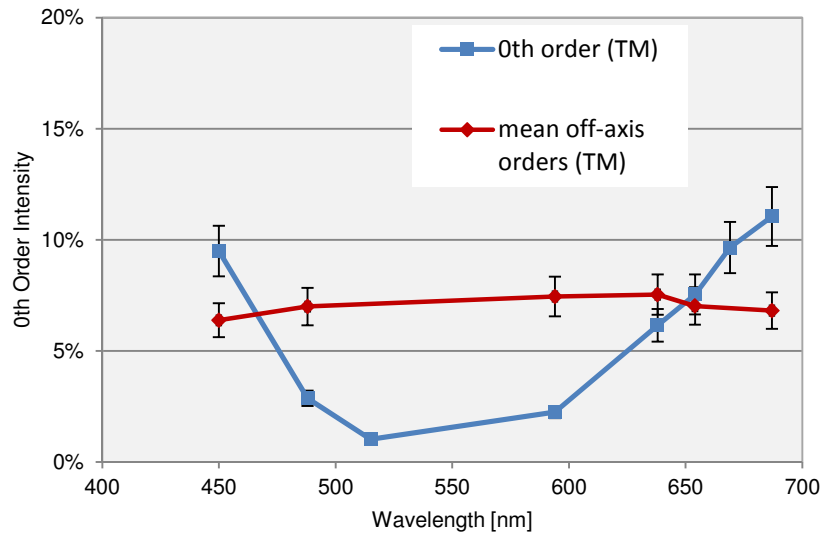
Laser diodes are the most common light source to be used with diffractive optical elements, but other laser light sources may also be used.

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	Mean OA intensity
488	2.3%	7.1%
515	0.8%	
594	2.7%	7.4%
638	6.9%	7.4%
654	8.5%	7.0%
669	10.7%	
687	12.3%	6.7%



## Line Power Profile

off-axis orders at 638 nm

