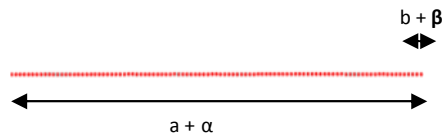


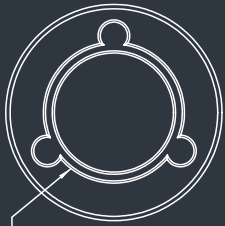
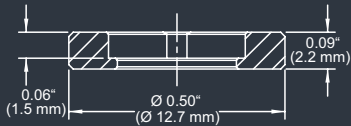
DE-R 282 Diffractive Optical Element



- **Element Number: DE-R 282**
- **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: 660 nm
- Recommended Wavelength Range: 600 - 700 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.

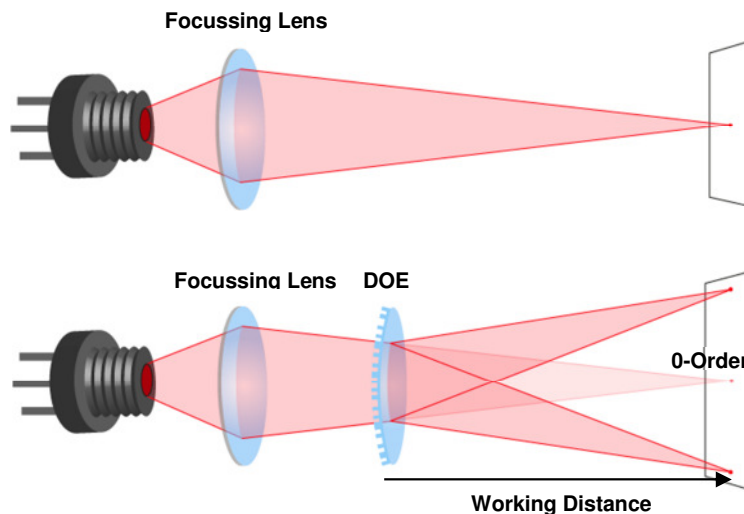
Within the recommended wavelength range, the zeroth order has a similar power than the off-axis beams of the dot line. Line width and line angles and the ratio between central spot and off-axis spots ('zero order intensity', see reverse page) will vary most with the wavelength.

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 | α | β |
| 450 nm | 23 mm | 0.23 mm | 13.0° | 0.13° |
| 515 nm | 26 mm | 0.27 mm | 14.9° | 0.15° |
| 532 nm | 27 mm | 0.28 mm | 15.4° | 0.16° |
| 635 nm | 32 mm | 0.33 mm | 18.4° | 0.19° |
| 650 nm | 33 mm | 0.34 mm | 18.8° | 0.19° |
| 670 nm | 34 mm | 0.35 mm | 19.4° | 0.20° |
| 730 nm | 37 mm | 0.38 mm | 21.2° | 0.22° |
| 780 nm | 40 mm | 0.41 mm | 22.6° | 0.23° |
| 808 nm | 41 mm | 0.42 mm | 23.4° | 0.24° |

Setup



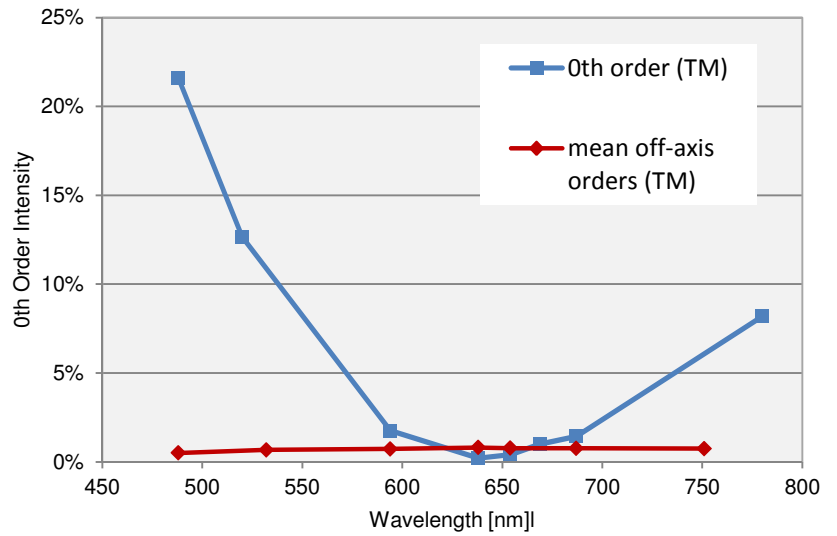
Laser diodes are the most common light source to be used with diffractive optical elements, but other laser light sources may also be used.

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 | Mean OA intensity |
|------------|-------------------|-------------------|
| 488 | 21.6% | |
| 520 | 12.7% | 0.67% |
| 594 | 1.8% | 0.72% |
| 638 | 0.2% | 0.81% |
| 654 | 0.4% | 0.77% |
| 669 | 1.0% | |
| 687 | 1.4% | 0.76% |
| 780 | 8.2% | |



Line Power Profile

off-axis orders at 654nm

