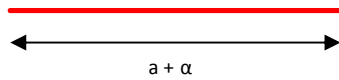


DE-R 287 Diffractive Optical Element



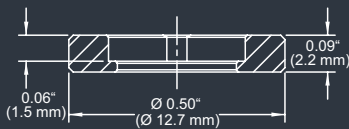
- **Element Number:** DE-R 287
- **Current Product Revision:** A
- Description: Quasi Continuous Line - 45
- Number of Spots on Line: 1285
- Substrate Material: Polymethyl Methacrylate (PMMA)
- Size (Ø x Thickness): 8 x 1 mm
- Design Wavelengths: 660 nm
- Recommended Wavelength Range: 600-700 nm
- Minimum Recommended Beam Diameter: 0.5 mm

Within the recommended wavelength range, the zeroth order is not brighter than the rest of the line. Line width and line angle 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.



Ø 0.32" (Ø 8.0 mm)

Thorlabs 8 mm steel lens adapter

COLLIMATED / CONVERGING LASER

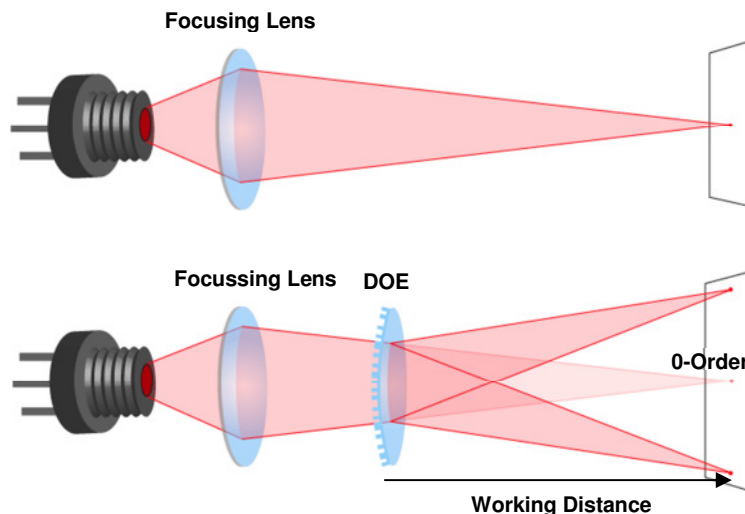
The laser can be collimated for long range use or converging for a fixed working distance.

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

Pattern Geometry and Diffraction Angles

Wavelength	Line Width @ 100 mm Distance a	Spot-to-spot spacing @ 100 mm Distance	Pattern Angle α
450 nm	55 mm	85.15 μm	31°
488 nm	60 mm	92.95 μm	33°
515 nm	63 mm	98.59 μm	35°
532 nm	66 mm	102.19 μm	36°
635 nm	80 mm	124.87 μm	44°
650 nm	82 mm	128.31 μm	45°
730 nm	95 mm	147.41 μm	51°
780 nm	103 mm	160.06 μm	54°
808 nm	107 mm	167.43 μm	57°

Setup



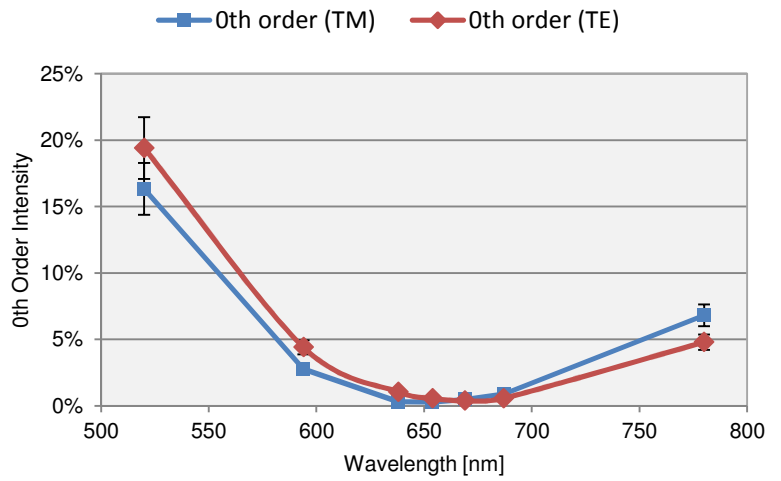
Laser diodes are the most common light source to be used with diffractive optical elements, but other laser light sources may also be used.

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
488	26%	30%
520	16.3%	19.4%
594	2.8%	4.4%
638	0.3%	1.0%
654	0.3%	0.5%
669	0.5%	0.4%
687	0.9%	0.6%
780	6.8%	4.8%



Line Power Profile

DE-R 287 (Rev. A) @ 654nm

