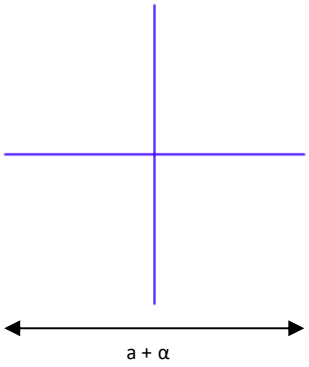
DE-R 382 Diffractive Optical Element

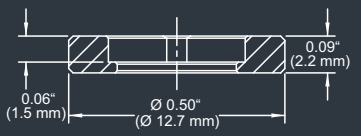


- **Element Number: DE-R 382**
- **Current Product Revision: A**
- Description: Cross – 30 @ 450
- Number of Spots on Line: 1003
- Size (Ø x Thickness): 8 x 0.63 mm
- Design Wavelengths: 450 nm
- Recommended Wavelength Range: 440-480 nm
- Minimum Recommended Beam Diameter: 2-3 mm

Within the recommended wavelength range, the zeroth order is not brighter than the rest of the cross. 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.
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

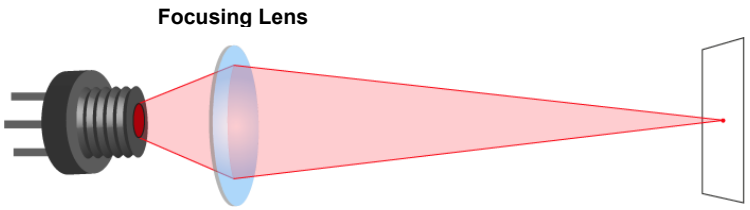
COLLIMATED / CONVERGING LASER

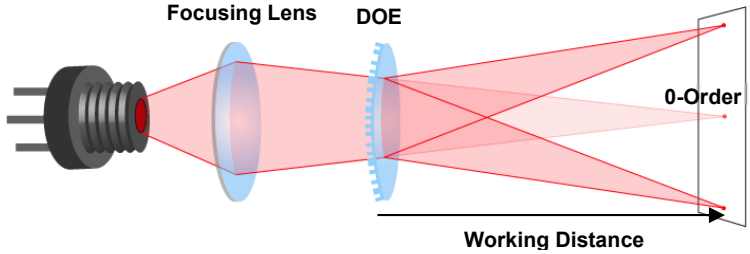
The laser can be collimated for long range use or converging for a fixed working distance. Please note that the size/thickness of each spot or line depends on the focusing of the laser.

Pattern Geometry and Diffraction Angles

Wavelength	Patttern Size @ 100 mm Distance	Pattern Angle
	a	α
405 nm	47.9 mm	26.9°
450 nm	53.6 mm	30.0°
515 nm	62.0 mm	34.5°
532 nm	64.3 mm	35.6°
594 nm	72.7 mm	40.0°
635 nm	78.5 mm	42.8°
650 nm	80.6 mm	43.9°
684 nm	85.6 mm	46.3°
750 nm	95.6 mm	51.1°

Setup





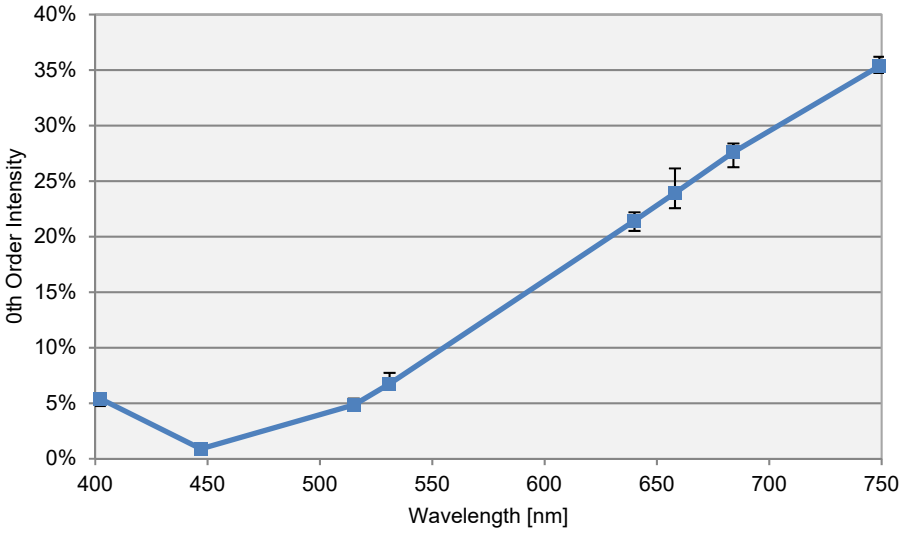
Laser diodes are the most common light source to be used with diffractive optical elements, but other laser light sources may also be used.

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
402 nm	5.4%
447 nm	0.9%
515 nm	4.8%
531 nm	6.8%
640 nm	21.4%
658 nm	23.9%
684 nm	27.6%
749 nm	35.4%



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