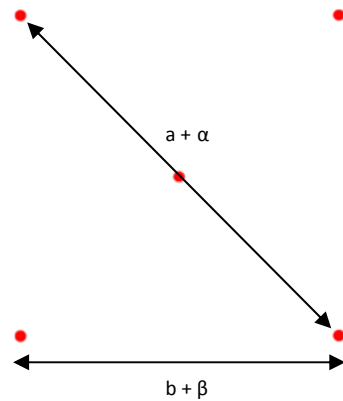


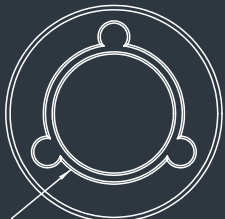
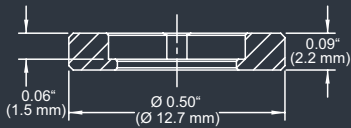
DE-R 223 Diffractive Optical Element



- **Element Number: DE-R 223**
- **Current Product Revision: A**
- Description: Square Matrix 2 x 2 + 1 Dots
- Number of Dots: 5 Dots
- Substrate material: Polymethyl Methacrylate (PMMA)
- Size (Ø x Thickness): 8 x 1 mm
- Minimum recommended beam diameter: 0.1 mm
- Design wavelengths: 635 nm
- Recommended wavelength range: 635 nm (at 635 nm the intensity of the 0-order spot is 16.8% and of the off-axis spots 13.2%) and 405 nm (at 405 nm the intensity of the 0-order spot is 6.5% and of the off-axis spots 10.8%)

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.



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.

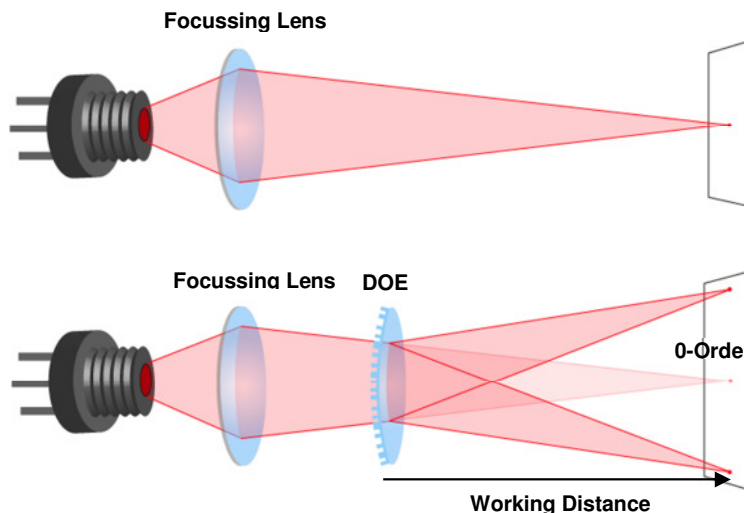
Pattern size and pattern angles and the intensity in the undiffracted central spot ('zero order intensity', see reverse page) will vary most with the wavelength. Within the recommended wavelength range, the zeroth order has a similar power than the off-axis beams of the dot matrix.

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

Geometry and Diffraction Angles

Wavelength	Pattern Size @ 100 mm Distance		Pattern Angles	
	a	b	α	β
405 nm	18 mm	12.7 mm	10.3°	7.3°
450 nm	20 mm	14.1 mm	11.4°	8.1°
515 nm	23 mm	16.1 mm	13.1°	9.2°
532 nm	24 mm	16.7 mm	13.5°	9.5°
635 nm	28 mm	19.9 mm	16.1°	11.4°
650 nm	29 mm	20 mm	16.5°	11.7°
730 nm	33 mm	23 mm	18.6°	13.1°
780 nm	35 mm	25 mm	19.9°	14.0°

Setup



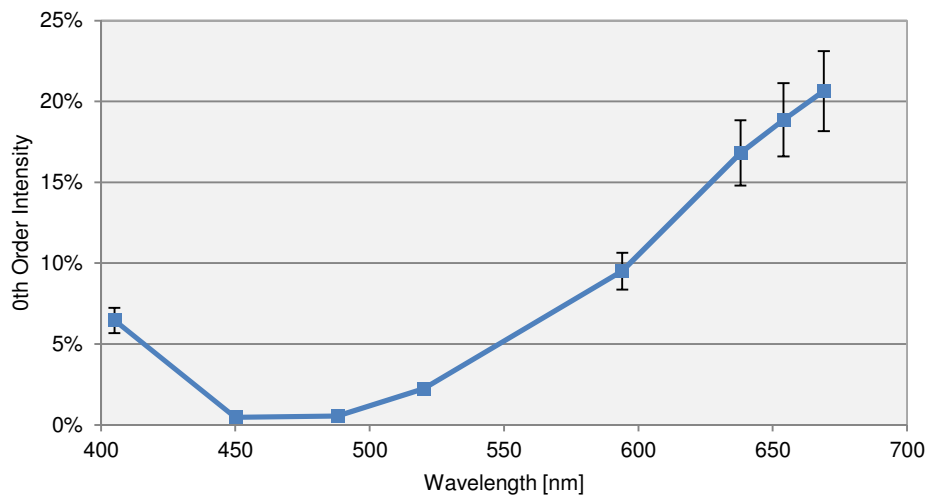
Laser diodes are the most common light source to be used with diffractive optical elements, but other laser light sources may also be used.

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
405	6.5%
450	0.5%
488	0.5%
520	2.2%
594	9.5%
638	16.8%
654	18.9%
669	20.6%



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