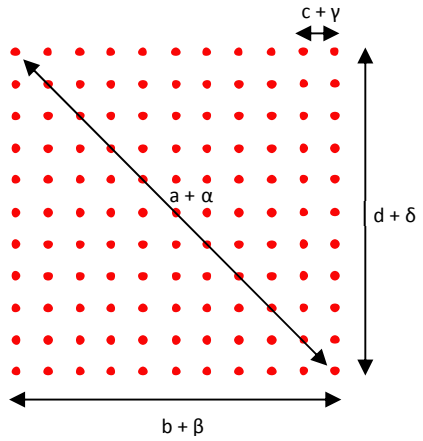
DE-R 258 Diffractive Optical Element

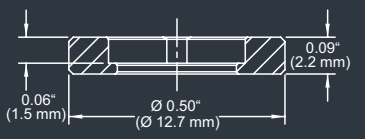


- **Element Number: DE-R 258**
- **Current Product Revision: A**
- Description: Matrix 11 x 11 Dots
- Number of Dots: 121 Dots
- Substrate material: Polycarbonate (PC)
- Size (Ø x Thickness): 8 x 1.2 mm
- Design wavelengths: 635 nm
- Recommended wavelength range: 590-690 nm
- Minimum recommended beam diameter: 2-3 mm

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. This Large-angle pattern is subject to geometrical distortion due to its symmetry properties, if the DOE is used at laser wavelengths significantly different (Δλ > 50nm) from the design 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.

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.



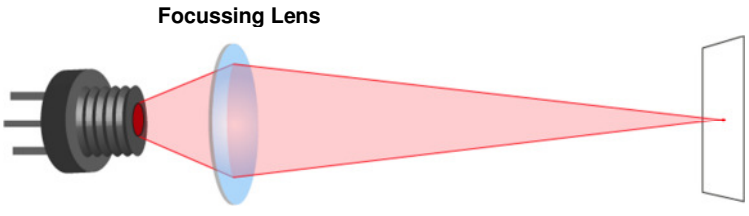
COLLIMATED / CONVERGING LASER

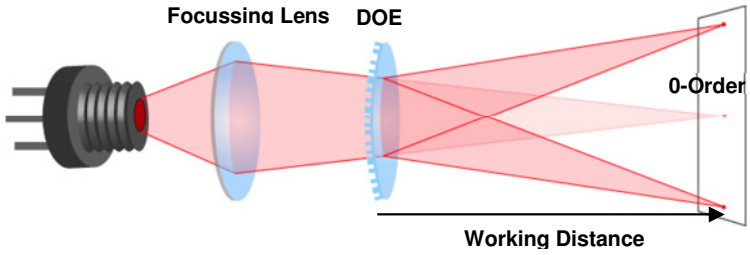
The laser can be collimated for long range use or converging for a fixed working distance. Please note that the size/thickness of each spot or line depends on the focusing of the laser.

Geometry and Diffraction Angles

Wavelength	Pattern Size @ 100 mm Distance				Pattern Angles			
	a	b	c	d	α	β	γ	δ
488 nm	49 mm	35 mm	3.5 mm	35 mm	28°	20°	2.0°	20°
515 nm	57 mm	40 mm	4.0 mm	40 mm	32°	23°	2.3°	23°
532 nm	59 mm	42 mm	4.2 mm	42 mm	33°	24°	2.4°	24°
635 nm	71 mm	50 mm	5.0 mm	50 mm	39°	28°	2.8°	28°
650 nm	73 mm	52 mm	5.2 mm	52 mm	40°	29°	2.9°	29°
730 nm	84 mm	58 mm	5.8 mm	58 mm	45°	33°	3.3°	33°
780 nm	90 mm	63 mm	6.3 mm	63 mm	49°	35°	3.5°	35°
808 nm	94 mm	65 mm	6.5 mm	65 mm	51°	36°	3.6°	36°

Setup





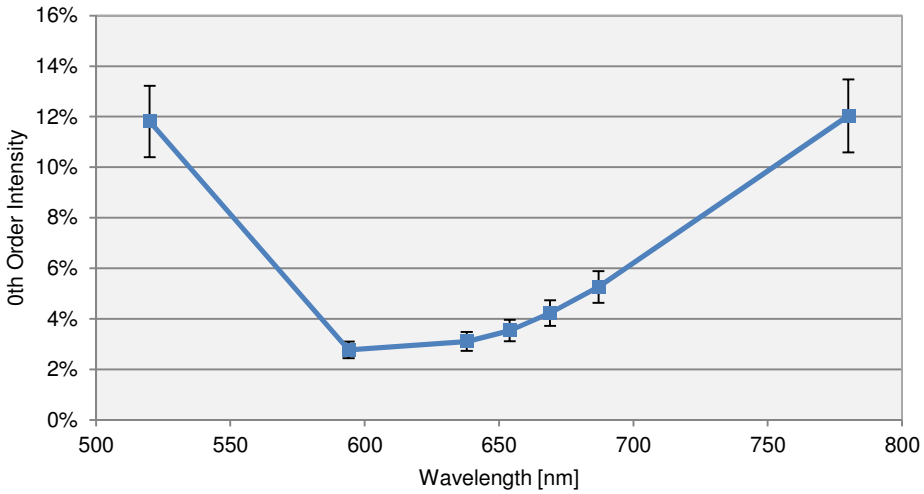
Laser diodes are the most common light source to be used with diffractive optical elements, but other laser light sources may also be used.

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
520	11.8%
594	2.8%
638	3.1%
654	3.5%
669	4.2%
687	5.3%
780	12.0%



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