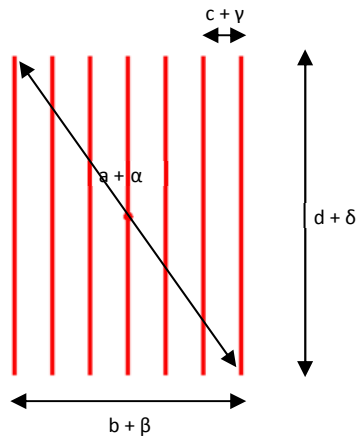


DE-R 251 Diffractive Optical Element



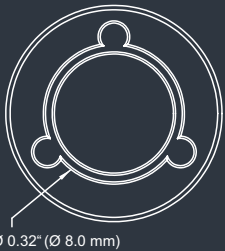
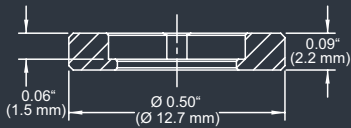
- **Element Number:** DE-R 251
- **Current Product Revision:** A
- **Description:** 7 Lines (Rectangular)
- **Substrate material:** Polycarbonate (PC)
- **Size (Ø x Thickness):** 8 x 1.2 mm
- **Design wavelengths:** 650 nm
- **Recommended wavelength range:** 590-730 nm
- **Minimum recommended beam diameter:** 2-3 mm

Within the recommended wavelength range, the zeroth order central spot is not visible on the line. 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.



COLLIMATED / CONVERGING LASER

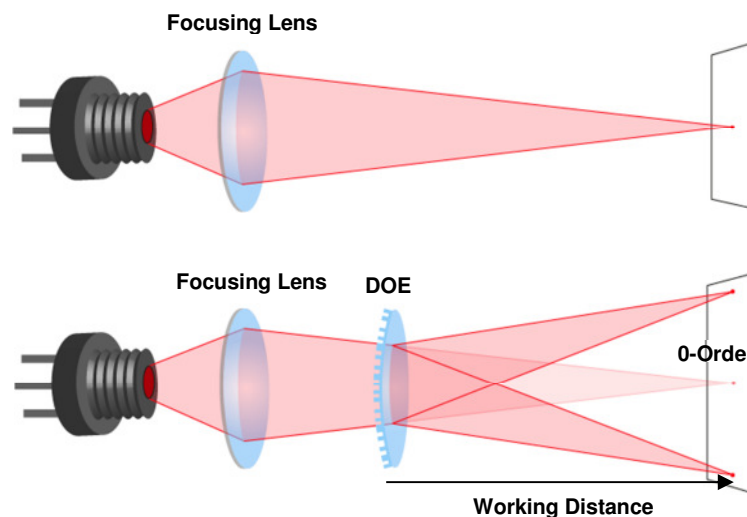
The laser can be collimated for long range use or converging for a fixed working distance.

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
450 nm	10.7 mm	6.3 mm	1.04 mm	8.7 mm	6.1°	3.6°	0.60°	5.0°
515 nm	12.3 mm	7.2 mm	1.19 mm	10.0 mm	7.0°	4.1°	0.68°	5.7°
532 nm	12.7 mm	7.4 mm	1.23 mm	10.3 mm	7.3°	4.2°	0.71°	5.9°
635 nm	15.2 mm	8.8 mm	1.47 mm	12.3 mm	8.7°	5.1°	0.84°	7.0°
650 nm	15.5 mm	9.0 mm	1.50 mm	12.6 mm	8.9°	5.2°	0.86°	7.2°
730 nm	17.5 mm	10.1 mm	1.69 mm	14.2 mm	10.0°	5.8°	0.97°	8.1°
780 nm	18.7 mm	10.8 mm	1.81 mm	15.1 mm	10.7°	6.2°	1.03°	8.7°
808 nm	19.3 mm	11.2 mm	1.87 mm	15.7 mm	11.0°	6.4°	1.07°	9.0°

Setup



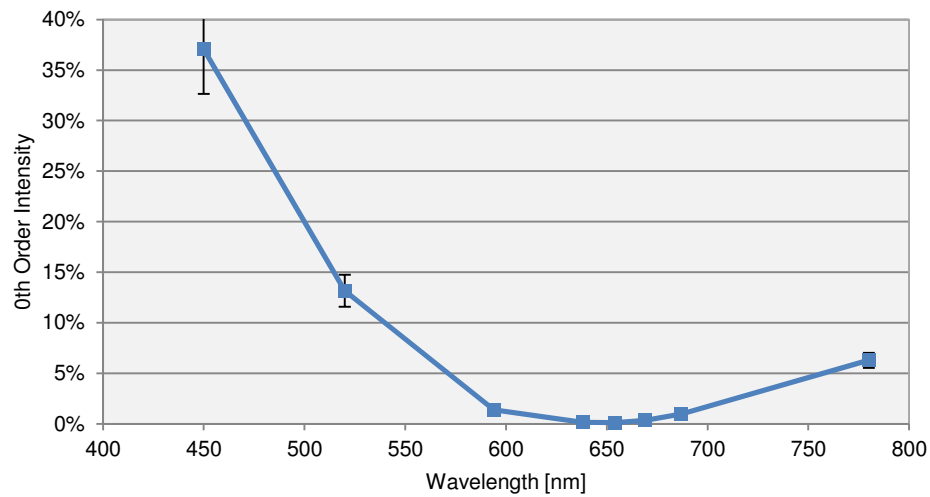
Laser diodes are the most common light source to be used with diffractive optical elements, but other laser light sources may also be used.

The DOEs are best 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
450	37%
520	13%
594	1.4%
638	0.1%
654	0.1%
669	0.3%
687	1.0%
780	6.3%



HOLOEYE Photonics AG
Volmerstr. 1
12489 Berlin, Germany
contact@holoeye.com
www.holoeye.com



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