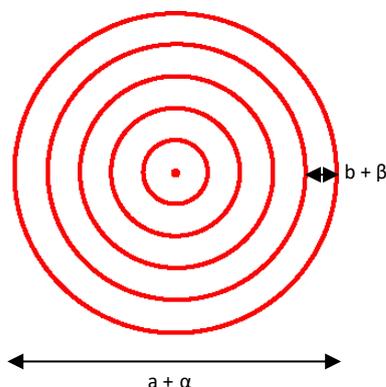


DE-R 259 Diffractive Optical Element



- **Element number: DE-R 259**
- **Current product revision: C**
- Description: 5 concentric rings
- Substrate material: Polycarbonate (PC)
- Size (\varnothing x thickness): 8 mm x 1.2 mm
- Design wavelength: 645 nm
- Recommended wavelength range: 550-700 nm *
- Minimum recommended beam diameter: 2-3 mm

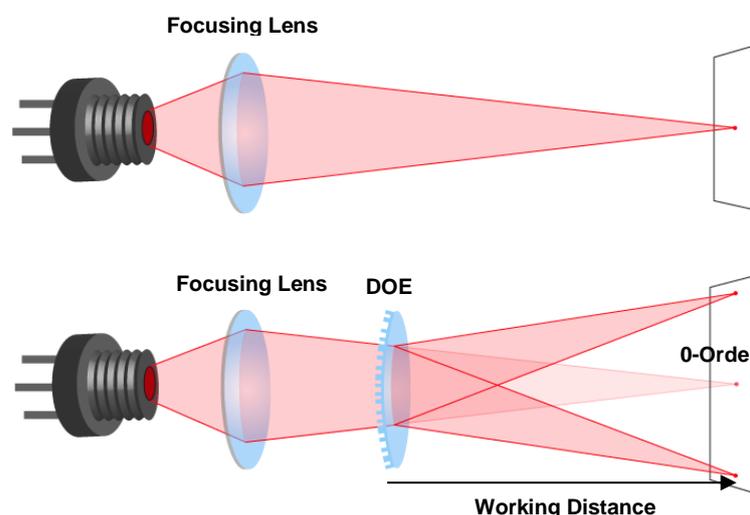
Within the recommended wavelength range, the element shows the lowest intensity in the zeroth order Z0 / central spot. Pattern size and pattern angles and the ratio between central spot / zeroth order ('zero order intensity', see reverse page) and outer concentric rings will vary most with the wavelength.

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

Pattern geometry and diffraction angles

Wavelength λ [nm]	Pattern size @ 100 mm distance		Pattern angles	
	a [mm]	b [mm]	α [°]	β [°]
450	35.2	3.5	20.0	2.0
515	40.5	4.0	22.9	2.3
532	41.9	4.2	23.6	2.4
640	50.8	5.1	28.5	2.85
660	52.5	5.3	29.4	2.94
750	60.3	6.0	33.6	3.4
808	65.5	6.5	36.2	3.6

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.

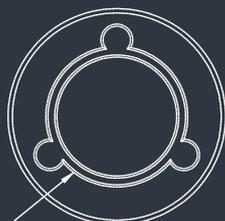
The DOEs are best used with collimated or convergent laser sources. The microstructure surface should be oriented towards the laser.

The 0-order spot is equivalent in size and shape to the original beam, but its power is attenuated.

*the recommended wavelength range is defined with $Z0 \leq 4.0\%$

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.



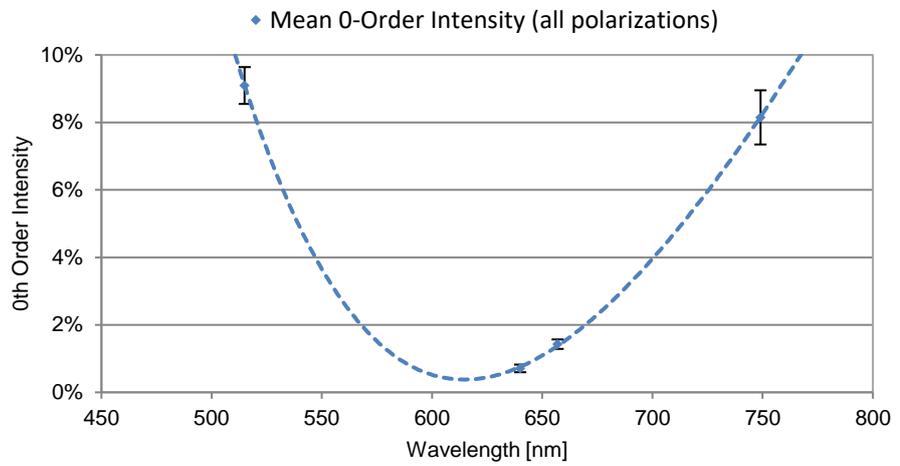
COLLIMATED / CONVERGING LASER

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.

Zero order intensity:

Wavelength [nm]	Mean 0-Order Intensity
447	30.8%
515	9.1%
640	0.7%
657	1.4%
749	8.2%
793	12.9%



The interval of deviation for the mean values corresponds to 2σ .