Spiral phase plate (Vortex) for lasers

A Spiral phase plate converts a Gaussian input profile into a donut-shaped energy ring.

The spiral phase plate is a unique optic, whose structure is composed entirely of spiral or helical phase steps, whose purpose is to control the phase of the transmitted beam.

The topological charge, denoted in the literature as m, refers to the number of 2π cycles (i.e. "staircases") etched around 360° turn of diffractive surface. One main effect of a higher topological charge is an increase in the angular momentum of the vortex beam by a factor of m. Another effect is the dimensions magnification of the ring intensity pattern, by a factor of m.

Features:

- High power threshold
- High efficiency
- Low back reflection
- Wavelengths from UV to IR
- Optional Ar/Ar coating
- Any topological charge

Applications:

- Astronomy
- Optical tweezers
- Encryption
- Microscopy
- Lithography

General Specificatioins

Materials:	Fused Silica, ZnSe, Plastic
Wavelength range:	193nm to 10.6um
DOE design:	2-level (binary) to 16-level
Diffraction efficiency:	75% - 96%
Element size:	Few mm to 100mm
Coating (optional):	AR/AR Coating
Topological charge:	Standard from 1 to 6. Other under request
Damage threshold:	~3 J/cm2 in 7nS pulse at 1064nm

Vortex products

Focal length 100mm, Input Beam Dia 5mm.

型号	激光波长[nm]	DOE 透镜尺寸[mm]	典型效率[%]	拓扑荷数	圆环光斑外径[mm]
VL-221-P-Y-A	632.8	25.4	37***	1	32.55
VL-222-P-Y-A	632.8	25.4	37***	1	32.55
VL-224-P-Y-A	632.8	25.4	37***	1	32.55
VL-227-P-Y-A	632.8	11	92	3	66.23
VL-214-P-Y-A	632.8	25.4	95	1	32.55
VL-215-P-Y-A	632.8	25.4	95	3	66.23
VL-216-P-Y-A	632.8	25.4	95	2	48.5
VL-217-P-Y-A	632.8	25.4	90	1	32.55
VL-218-P-Y-A	632.8	25.4	92	4	84.92
VL-219-P-Y-A	632.8	25.4	95	3	66.23
VL-220-P-Y-A	632.8	25.4	95	2	48.5
VL-204-P-Y-A	632.8	11	92	1	32.55
VL-208-P-Y-A	632.8	25.4	92	1	32.55
VL-209-P-Y-A	632.8	25.4	95	1	32.55
VL-225-P-Y-A	632.8	25.4	92	6	124.56
VL-226-P-Y-A	632.8	11	95	3	66.23
VL-206-P-Y-A	632.8	11	95	1	32.55
VL-228-P-Y-A	632.8	11	92	6	124.56

VL-229-P-Y-A	632.8	11	92	2	48.5
VL-230-P-Y-A	632.8	25.4	95	6	124.56
VL-231-P-Y-A	632.8	25.4	95	4	84.92
VL-232-P-Y-A	632.8	11	95	6	124.56
VL-233-P-Y-A	632.8	11	95	12	244.77
VL-234-P-Y-A	632.8	11	95	2	48.5
VL-235-P-Y-A	632.8	11	95	4	84.92
VL-236-P-Y-A	632.8	25.4	95	12	244.77
VL-237-P-Y-A	632.8	11	92	5	104.26
VL-238-P-Y-A	632.8	11	95	5	104.26
VL-239-P-Y-A	632.8	25.4	92	12	244.77
VL-240-P-Y-A	632.8	11	92	12	244.77
VL-241-P-Y-A	632.8	25.4	92	8	164.2
VL-242-P-Y-A	632.8	11	92	8	164.2
VL-243-P-Y-A	632.8	11	92	4	84.92

***: Efficiency for one donut shape; VL-221 and VL-222 transform a single mode beam input to 2 rings around the optical axis at focal plane and VL-224 transforms a single mode beam input to 2 rings along the optical axis.