Single Mode Ring Generator

Overview:

The PowerPhotonic Ring Generator is designed to transform a collimated single mode beam into a small, <2x diffraction limited, ring profile at the focus of a lens.

Our Ring Generators are thin glass windows with a precision freeform surface, designed to easily integrate into your existing laser system.

The ring profile is used to ensure a tightly controlled optical and thermal profile of the laser beam as it scans across the surface of the work piece.

PowerPhotonic beam shapers are perfect for use in additive manufacturing and other laser micro-processing systems due to their high laser damage threshold and ease of integration.

The PowerPhotonic Effect:

>95%

Shaping Efficiency

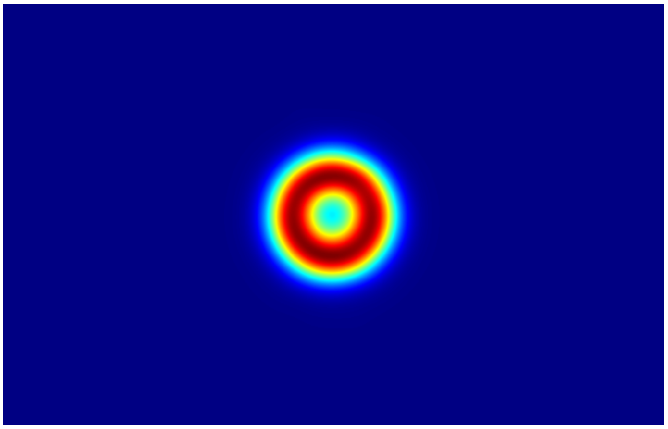
2.7 : 1

Extinction Ratio (Ring:Well)

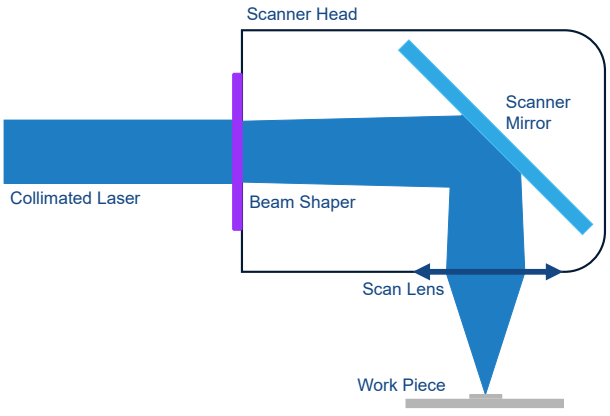
>100kW

Power Handling Capability

Output Profile:



Optical Layout:



Key Features:

- High Power Handling Capabilities
- High Extinction Ratio
- Near Diffraction Limited Ring

Target Applications:

- Additive Manufacturing
- Laser Micro Machining
- Ultrafast Material Processing

Single Mode Ring Generator

Standard Part:

Part Number	Design Wavelength (nm)	Input Beam Diameter, $1/e^2$ (mm)	Ring Diameter, Peak to Peak (µm)*
PP-SM-RNG-1070-0-AR	1070	5	50

*Peak to Peak Diameter calculated with a 100mm focusing lens

General Specification:

Parameter	Value
Part Diameter (mm)	25.4 +0/-0.1
Part Thickness (mm)	1.01 +/- 0.01
Part Clear Aperture, Diameter (mm)	15
Coating Reflectance, Per Side (%)	<0.5

Performance:

Parameter	Value
Peak to Peak Diameter (%)	+/- 3
Extinction Ratio, (Ring: Well)	2.7
Power in the Bucket⁺ (%)	>95%

⁺ Fraction of Power within the primary spot

Custom Options:

The PowerPhotonic Ring Generator can be readily modified for specific laser systems and processes. Our unique manufacturing and design process allows for efficient customisation without the need for masks or masters.

Some of the custom options available include:

Different laser wavelengths (between 450nm and 2µm)
Different input beam diameter
Different output peak to peak diameter
Different extinction ratio
Different part diameter and thickness

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