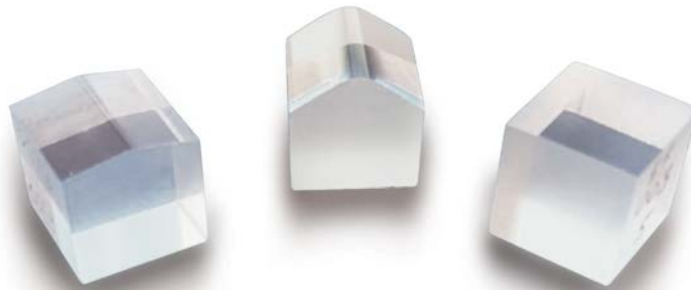


POWELL LENSES

Top-Hat-Profile Laser Line Generating Optic

Powell lenses offer the simplest means of transforming a circular, Gaussian profile laser beam into a uniform (top-hat profile) line having a specific fan angle. The unique shape of the Powell lens delivers superior results compared to other line generation methods, such as cylinder lenses, lens arrays, and diffraction gratings.

A key differentiator of Coherent Powell lenses is that we guarantee their optical performance – including intensity uniformity, contained power, and line straightness – across 100% of the specified line fan angle. In contrast, the performance specifications of most competitive products only apply across the central 80% of the line. The result is that Coherent optics deliver better measurement accuracy, signal-to-noise ratio, and unit-to-unit consistency.



FEATURES

- Exceptional intensity uniformity for consistent applications results
- Large, contained power in the line provides high signal-to-noise
- Compatible with lasers of input beam diameters from 1 to 5 mm
- Large selection of fan angles (1°, 5°, 10°, 15°, 20°, 30°, 45°, 60°, and 75°) provide design freedom
- High transmission with anti-reflection (AR) coatings optimize efficiency

APPLICATIONS

- Machine Vision
- Flow Cytometry
- Inspection
- Scanning
- Life Sciences

Standard Antireflection Coated Powell Lenses for 400 to 500 nm Lasers

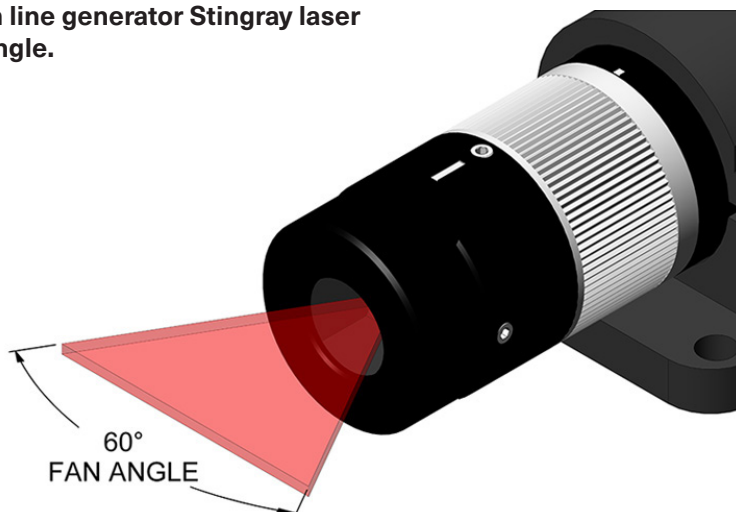
Input Beam Diameter 1/e ² (mm)	Fan Angle (Full Angle in Degrees)									
	1	5	10	15	20	30	45	60	75	
1.3	1280676	1280677	1280678	1280679	1280680	1280681	1280682	1280683	1280684	
1.5	1285895					1285896				
2.2		1280686			1280689	1280690	1280691	1280692	1280693	
2.5		1389998	1389942		1323293		1372986	1323294		
Intensity Uniformity	≤15%						≤25%		≤33%	

Standard Antireflection Coated Powell Lenses for 500 nm to 850 nm Lasers

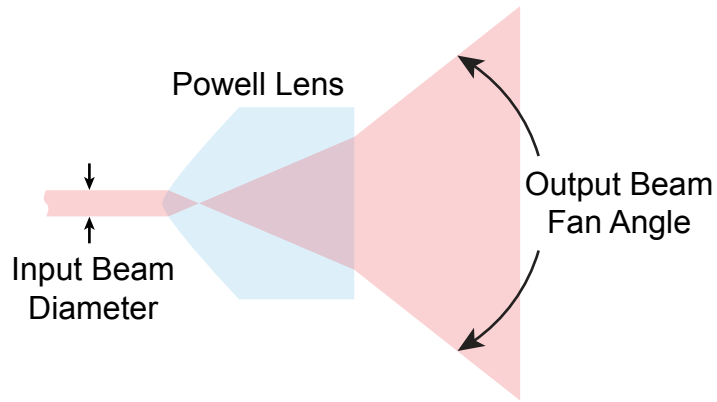
Input Beam Diameter 1/e ² (mm)	Fan Angle (Full Angle in Degrees)									
	1	5	10	15	20	30	45	60	75	
1.0	1230098				1230115	1230119		1230134		
1.3		1230103	1223386	1223387	1230116	1223390	1230120	1230135	1230139	
1.5	1230100	1230104	1230108	1230112	1230117	1223389	1223393	1230136	1230140	
1.8	1299051	1299052	1299053	1299054	1299055	1299056	1299057	1299058	1299059	
2.2	1230101	1230105	1230109	1230113	1223388	1223392	1230132	1223394	1230141	
2.5		1230106	1230110	1230114	1230118	1223391	1230133	1230137	1230142	
3.0							1284113			
3.3						1284109				
4.4						1284110				
5.0						1284111		1284121		
Intensity Uniformity	≤15%						≤25%		≤33%	

Are you looking for a Powell lens built into a laser system? Stingray lasers from Coherent are compact and user-focusable, with a wide variety of options for wavelength, output power, and control.

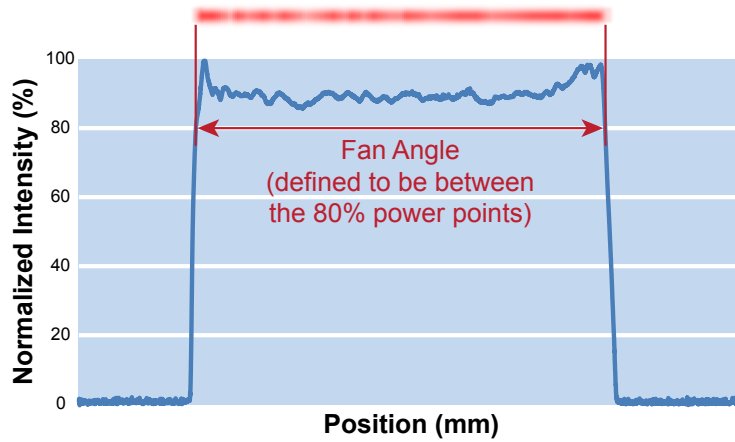
Example shown of a uniform line generator Stingray laser output with 60 degree fan angle.



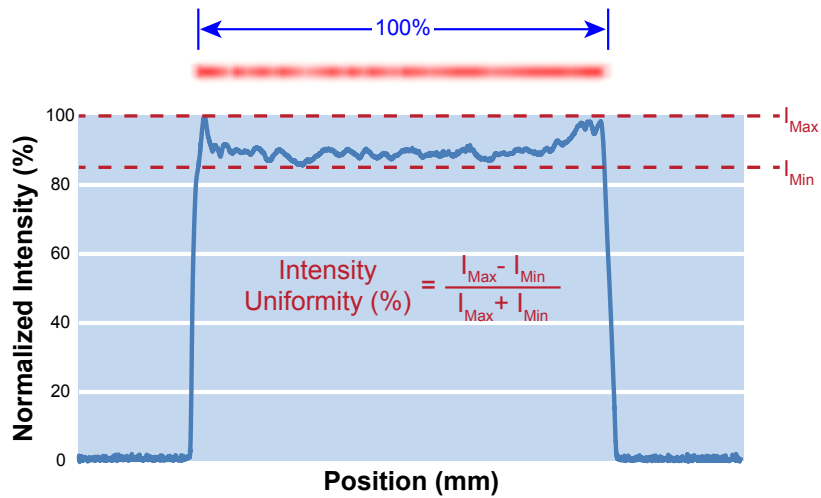
Powell Lens Specifications Definitions



Definition of Fan Angle



Definition of Intensity Uniformity



Mechanical Specifications

Powell Lens

