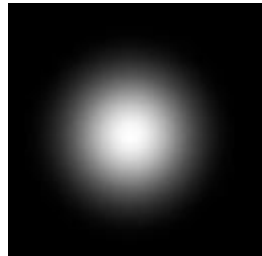


Laser Beam Quality and Focal Intensity 10^{14} W/cm^2

Flexible Light
Pipe: Single mode

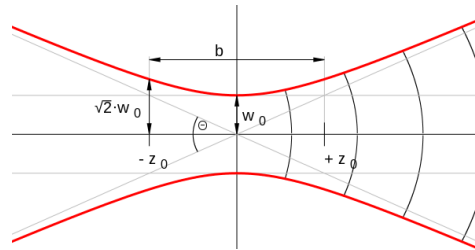


Focus-ability, Beam-Parameter Product (M^2)

Waist radius w_0 , far-field divergence half angle θ

$$w_0 \cdot \theta = M^2 \frac{\lambda}{\pi}$$

($M = 1.0$ for single-mode)



Application	Pulse Energy →	Pulse Width →	Peak Power	Power Factor	Focal Diameter	Focal Area cm^2	Focused Intensity	$\geq 10^{14} \text{ W/cm}^2$
Compact LWFA (5 μm focus)	50 μJ	1 ps	50 MW	1E+06	5 μm	2.E-07	2.5E+14	yes
10 μm focus	200 μJ	1 ps	200 MW	1E+06	10 μm	8.E-07	2.5E+14	yes
20 μm focus	1 mJ	1 ps	1 GW	1E+09	20 μm	3.E-06	3.2.E+14	yes