

Lens for Thick Glass Cutting

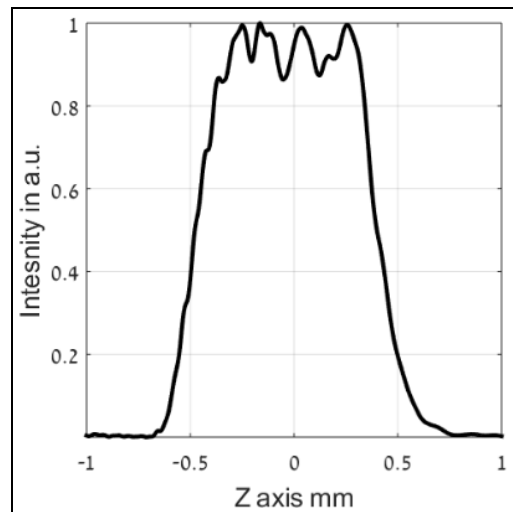
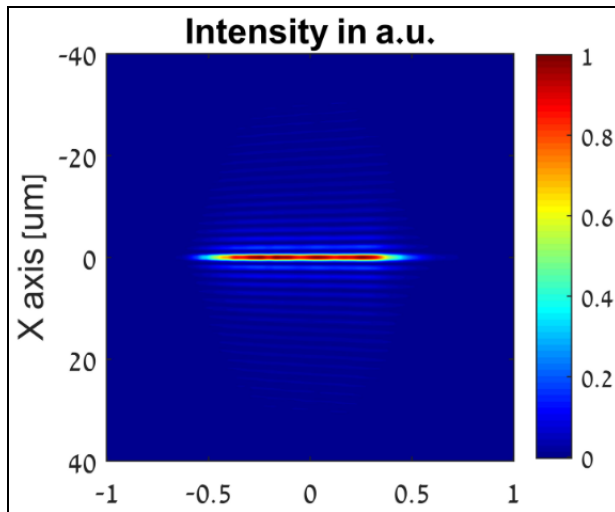
Our special designed Lens for Thick Glass Cutting focuses an incident single mode laser into a tight spot with 1.8 μm waist size along the entire Depth of Focus range (1-2mm typical range). The focused spot is equivalent to 0.35 objective NA and is ideally suited for thick glass cutting, such as flat panels. This module is a complete optical solution for cutting applications. There are no need for additional high NA objectives or other high cost optics. The Lens for Thick Glass Cutting module differs from standard EF elements by constant peak power along the focus region and requires low M^2 and accurate input beam size.



Main features:

- Full depth glass cut from single pulse
- Complete solution in a single module
- Very low aberrations level- spot diameter $<2\mu\text{m}$
- Easy to integrate into existing opto-mechanics

Elongated Focus with uniform intensity:



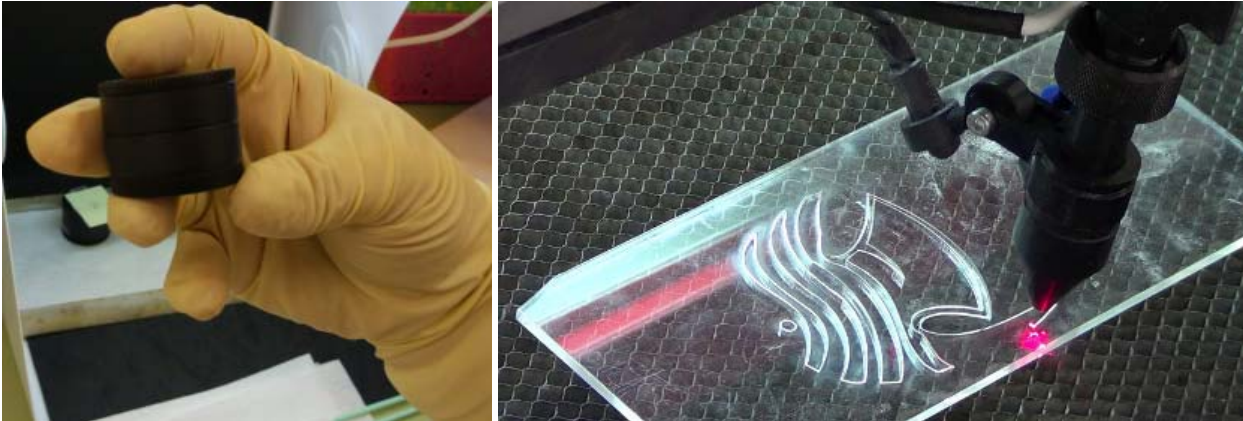
Technical specifications:

Wavelengths	1030nm, 1064nm, others by request
Required laser input	Single mode $M^2 < 1.3$
Input Beam Diameter (exp^{-2})	6mm ($\pm 10\%$)
Depth of Focus in Air	~1mm
Waist Diameter (exp^{-2})	1.8 μm
Working Distance	7.4mm
Dimensions	30.5mm diameter x 106 mm length
Mounting Threads	SM1, SM05 external
Optical elements Material	Fused Silica
Efficiency	$>93\%$

* Depth of focus can be customized according to customer need.

Multifocal Lens for Glass Cutting

Diffraction Multifocal (MF) lenses are widely used for glass cutting applications. **In this process, multiple foci are formed along the cutting path, thus increasing the speed and accuracy of the process.** To achieve optimal performances, small separation distances between neighbour foci and high-power densities are required. This is usually achieved with a high NA objective lens. However, the majority of off-the-shelf high-power objectives does not meet the application requirements and result in degraded performance. To address this issue, we have developed a tailored focusing module for glass cutting applications, by using a Multifocal lens. Our Multifocal module maintains diffraction limited spots size at all foci.



Main features:

- Complete solution – no need to purchase the components from separate vendors
- Enhanced performance – very low aberrations level, Diffraction limited spot size
- Accepts large input beam diameter (15mm or more), enabling smaller spots
- Tailored per customer's parameters
- Achieves more accurate results and increases process throughput

Technical specifications:

Focal Length	20mm
Clear Aperture	20mm
NA	0.45
Focusing performance	Diffraction limited
Operating Wavelength Range	700-1100nm
Focal function	Any multi / elongated focus
Dimensions	30mm dia. x 25mm length