

## Deep Cleave Glass Cutting

### Elongated Focus with Uniform Intensity

Our DeepCleave module focuses an incident single mode laser into a tight spot with  $\sim 1.8 \mu\text{m}$  waist size along the entire Depth of Focus range (1 – 2 mm typical range).

The focused spot is equivalent to 0.35 objective NA and is ideally suited for glass cutting of thick glasses, such as flat panels.

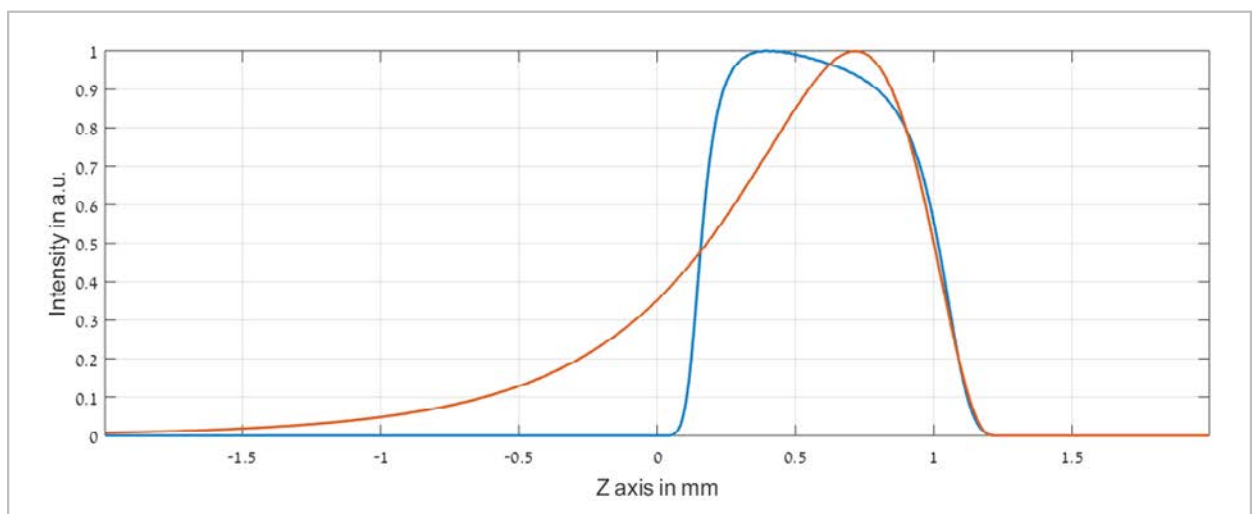
This module is a **complete optical solution** for cutting applications. No need for additional high NA objectives or other high cost optics.

The DeepCleave module differs from standard EF elements by constant peak power along the focus region and requires low  $M^2$  and accurate input beam size.

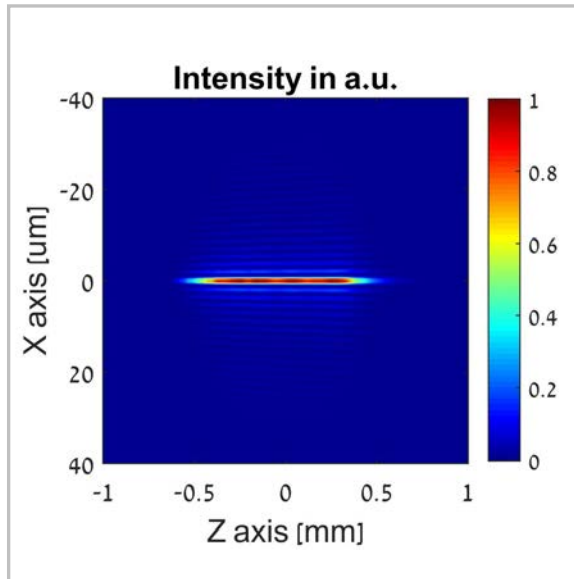


### Why choose DeepCleave for your glass cutting application:

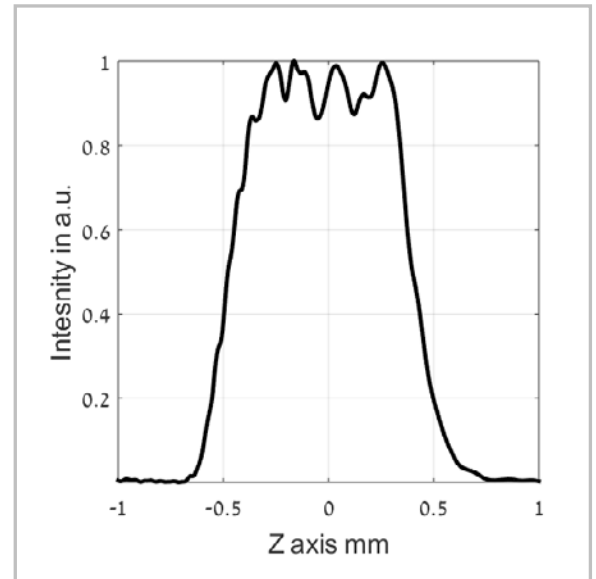
- Full depth glass cut from single pulse
- Complete solution in a single module
- Very low aberrations level- spot diameter  $< 2 \mu\text{m}$
- Easy to integrate into existing opto-mechanics



Ray tracing simulation of standard Bessel Beam (red) Vs. DeepCleave (Blue) - Almost no energy is wasted in Deepcleave



Physical Optics Simulation of DeepCleave

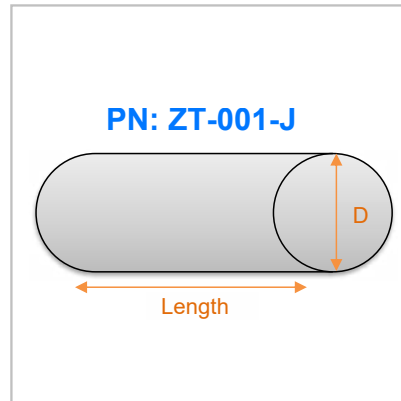


Intensity Profile along Z axis for DeepCleave

## Specifications of DeepCleave Module ZT-001-J

Wavelengths	1030 nm, 1064 nm, others by request
Required laser input	single mode M2 < 1.3
Input beam diameter (exp <sup>2</sup> )	6 mm (±10%)
Depth of focus in air	~1 mm
Waist diameter (exp <sup>2</sup> )	1.8 μm
Working distance	8.9 mm
Dimensions	30.5 mm diameter x 119 mm length
Mounting thread	SM1
Optical elements material	Fused Silica
Efficiency	>93%

Zemax Blackbox (zbb) of DeepCleave is available on demand.



### Input Parameter

Wavelength [nm]	1030
Beam mode (SM / MM)	SM (M2 < 1.3)
Required input beam diameter (exp <sup>-2</sup> ) [mm]	6

### Module Parameters

#### Optical Parameters

Element type	module
Optical elements material	Fused Silica
Working distance [mm]	8.9
Coating	all optical elements are AR coated

#### Mechanical Parameters

Dimensions	30.5 mm diameter x 119 mm length
Mounting thread	SM1

### Output Parameter

Depth of focus in air [mm]	~1
Waist diameter (exp <sup>-2</sup> ) [μm]	1.8
Overall efficiency	>93%

Holo/Or can improve the performances of this item. Please send us your requirements.