



## NEWSLETTER - Q3 2019

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### Announcements

#### China International Optoelectronic Exposition Is Coming Up!



We would like to invite you to meet us at the upcoming **China International Optoelectronic Exposition, Shenzhen, on September 4-7.**

This exposition is a wonderful opportunity for you to witness a live display of our products, including our new innovative DeepCleave™, the complete solution for glass cutting applications.

You are welcome to visit our booth #3R16, meet our excellent optical engineers, discuss your project and get answers to all your questions, in either English or Chinese.

This year, our team will be accompanied by a Chinese translator in order to provide you information in both English and Chinese.

[Schedule a meeting](#) with our engineers to guarantee a private time slot, or visit us at **Hall 3 Booth #3R16.**

### New Products

#### ToF Depth Sensing Using Diffractive Diffusers

Time-of-Flight depth sensing systems are rapidly becoming a major contender in the automotive LIDAR/ADAS and robotics fields. Such systems require **a highly uniform light intensity** projected over a large FOV. To provide the required performance, Holo/Or has developed high angle diffractive homogenizers **with excellent uniformity and razor-sharp diffraction limited**

**edges.** We now offer these elements not only in plastic, but also in pure fused silica, making them compatible with harsh soldering regimes and extreme environmental conditions, providing our customers with improved transmission efficiency and reliability.

[Contact us for more details.](#)

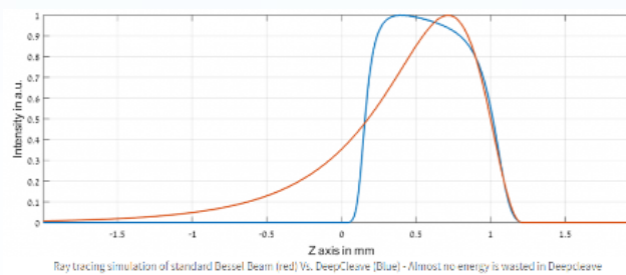
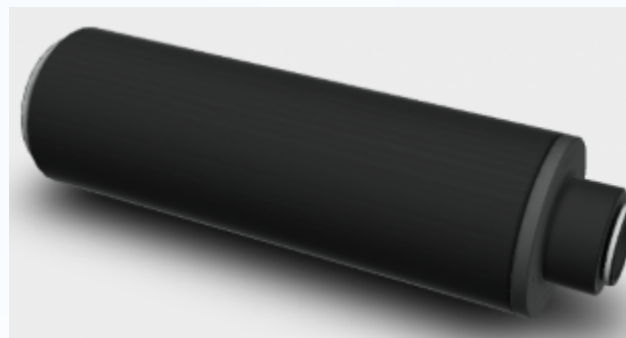
## Applications

### Optimizing Laser Glass Cutting with Diffractive Beam Shaping

Laser glass cutting with ultra-short IR pulses is lately growing to become a key technique for the **high throughput glass processing**. Cutting thick glasses (>500um) using this technique possess unique challenges, as **the laser energy needs to be both focused to a tight spot, and spread evenly in the glass depth.**

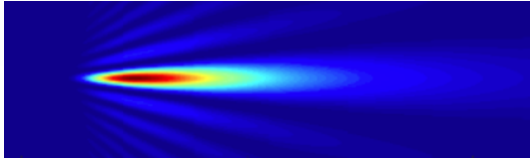
Holo/Or offers several solutions to help our customers with their glass cutting needs.

For customers interested in a **full solution** and **optimal performance**, we have recently launched the [DeepCleave™ Module](#), with a spot of less <2um diameter, having uniform intensity over a range of >1mm in air and >90% efficiency. This is a stand-alone solution, requiring no external focus optics, and is designed to work with single mode lasers and a specific beam diameter input.

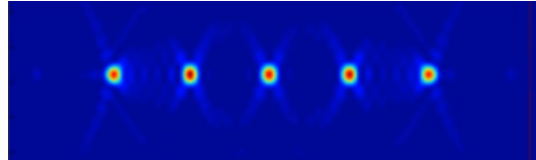


Other, more flexible but less uniform focal shaping solutions we offer, are our [Elongated Focus](#) and [Multi-Focal](#) components. These elements **increase the focal depth** of the beam, or **split the focal region into several spots**, enabling improved glass cutting performance. These components can be used

with both single and multi-mode lasers with flexible input beam diameter and generally require external focusing optics.



Elongated focus



Multifocal

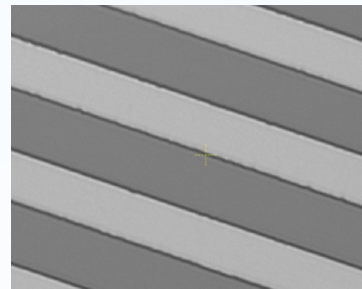
Using these components, best glass cutting results are often achieved by using our [Glass Cutting module](#), which boasts a 0.45NA and a clear aperture of 20mm, making it a perfect fit for our Beam Foci element.

### Large Area Multi Line Scanning For Panel Processing

Many applications in the Solar panels and Microelectronic industries require **parallel ablation or scribing of lines** on a flat substrate, such as scribing of electrodes or copper removal. These sorts of applications often employ Holo/Or's [Multi-Spot Beam Splitter DOE](#) to create the spots used for the parallel writing, along with a scanner.

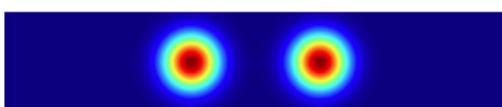
Often, a large area needs to be covered by the spots, with **good uniformity**, and at short wavelengths (UV and green, mostly), which can be challenging to achieve.

Over the years, Holo/Or has developed methods for dealing with such systems, including full design of the focusing system to be used with our Beam Splitter DOE to achieve the required performance.

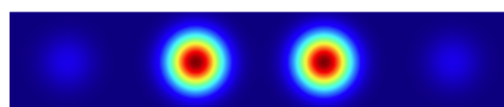


For **enhanced performance**, we recommend using our HEDS / HEQS elements, which are special sub-aperture based DOEs capable of splitting the input beam into parallel spots with **>95% efficiency and almost no power in undesired orders**, perfect for customers with highly demanding power applications, however customers should be aware that unlike the regular Multispot elements, the HEDS/HEQS are sensitive to centration and alignment.

[Contact us for more details.](#)



HEDS



Standard Double Spot (DS)

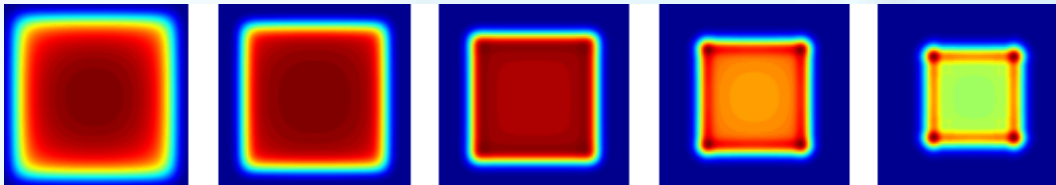
**Technical Tips**

## Obtaining Optimal Performance From Top-Hat Beam Shapers

Holo/Or's [Top-Hat Beam Shapers](#) provide the ultimate shaping functionality, with highly uniform intensity distribution that can be shaped to a square, circle, rectangle, line or any other shape.

Our elements are used in many applications in the laser industry, including ablation, cutting, lift-off, welding and other laser material processing applications.

To obtain the best performance from Holo/Or Beam Shapers, customers need to **adjust beam diameter and beam divergence**, and must **center the beam on the element** and find the correct focal plane. Holo/Or offers a [detailed installation manual](#) that has tips for getting the most out of our elements, including adjustment techniques and recommended optics.

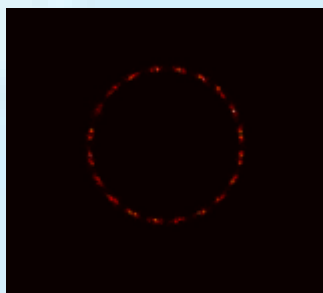


Defocus effect for square Top-Hat shape

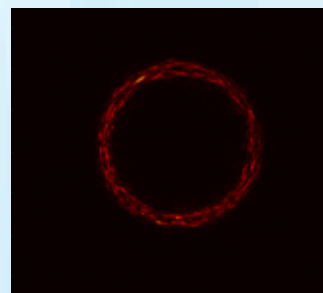
### New Publications

## Anamorphic $M^2$ Laser Transformation

Transforming the beam of a highly multimode laser into a narrow annular shape with almost single mode diffraction-limited ring width is a potentially useful technique for certain material processing applications, such as drilling and cutting. We have published an experimental demonstration of our unique diffractive method of doing this transformation. [Read more here.](#)



M2 transformed ring



Standard Axicon

For more informaton please [contact us.](#)



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