

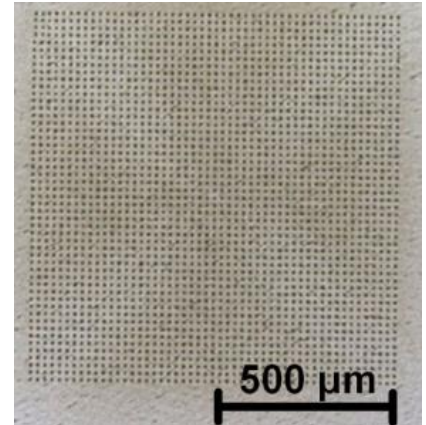
## Holo/Or Newsletter – Q4 2021

### **End of the year stock sale!**

### **Publications and webinars**

#### **DLiTe surface texturing article published in Nature "Scientific Reports"**

Holo/Or is proud to announce that the results of our collaboration with HiLASE center on rapid surface texturing using our [DLiTe concept](#) have been published in Scientific Reports journal, one of the most prestigious scientific journals and a part of the "Nature" portfolio. The article, available for [free access here](#), shows that by using a single DLiTe DOE and a powerful PERLA100 laser, a surface can be textured with 2601 indentations simultaneously in a 1x1mm area. This enabled a high texturing rate of almost 2000cm<sup>2</sup>/min, with a simple, robust optical setup that uses standard high power laser optics and a single DOE.



#### **Holo/Or and Blackbird present fast welding at EPIC meeting on lasers for automotive industry**

We recently presented our cooperation with our sister company, Blackbird photonics, at the European Photonics Consortium meeting regarding lasers for automotive manufacturing. Our Flexishaper solution was shown to improve Bipolar plate welding speed by more than 40%! [See the talk here>>](#)

[Read more about flexishaper here >>](#)

### **Applications**

#### **Application spotlight: Laser Shock Peening with flat top beam shapers for better process uniformity**

Laser shock peening (LSP) is an economic and ecological alternative to metal surface hardening by shot peening. It is especially useful in finishing of parts manufactured using additive manufacturing methods, where often the surface quality is sub-optimal. In LSP, the laser beam strikes the surface and immediately evaporates a thin layer of it to plasma, creating a shock wave pressure on the workpiece. Sometimes, an additional thin layer of an opaque overlay material is placed on the workpiece so that this material will be evaporated and not the metal. To increase that pressure, another transparent overlay or inertial tampering layer is often used to capture the plasma, typically – water.

With increasing laser power, larger areas can be hardened, increasing processing speed. However, a gaussian beam profile is often sub-optimal for the process, as the hardening shock is non-uniform over the surface, requiring multiple overlap when stitching the processed zones to achieve good uniformity. By using a Flat top beam shaper, overlap can be decreased, increasing the LSP process throughput.

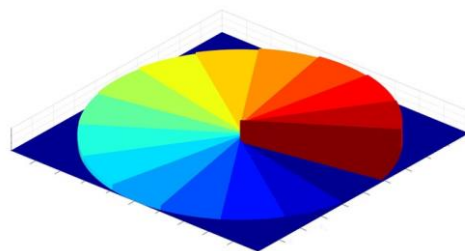
Holo/or offers multiple beam shaping solutions suitable for LSP – our [top hat beam shapers](#) can shape the spot to a square or rectangle with flat top intensity.

[Learn more here >>](#)

## New Products

### Cost effective vortex generator for microscopy laser applications by HOLO/OR Ltd.

HOLO/OR has recently developed a **new production process which enables us to offer microscopy grade vortex phase plates at affordable and competitive costs** to meet the growing market's needs.

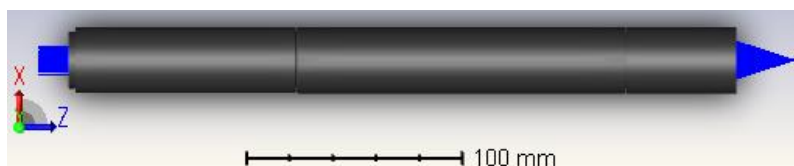


[Vortex phase plates](#) are often used in advanced microscopy, mostly in the STED and laser tweezing applications. By adding a vortex phase plate, it is possible to shape the spot to a donut-like distribution, with a central hole that is smaller than the diffraction limit. This enables sub-diffraction limit optical resolution by depleting fluorescent excitation in all areas outside the hole (as is done in STED), or trapping and manipulating very small particles, as is done in tweezing.

Our new, cost-effective vortex generators have a high LDT, suitable for illumination with > 1000 mW of laser power, are stable at typical microscope operating conditions (-40 to +120 °C) and can be easily integrated into existing setups due to their small form factor. For interested customers, HOLO/OR can mount them in 1" holder frames to facilitate integration into the laser light path. [Get a quote here>>](#)

### Increased working distance of DeepCleave glass cutting modules

Holo/Or is always open to feedback from our customers. In recent months we heard from many customers that used our DeepCleave glass cutting



module to get successful results, in some cases reaching 0.75m/s glass cutting speed in a lab setup. A recurring theme is that there is a need for greater work distance and a method to protect the end optics from process debris. To answer this, we have launched our extended work distance versions of the proven DeepCleave glass cutting Module. These models have up to 23.7mm work distance and come with an easily replaceable and cleanable fused silica **protective window**.

[Read more about it here >>](#)

[DeepCleave installation guide >>](#)