Holo/Or Newsletter – Q1 2024

Company News

Commissioning of new production equipment in our production cleanroom

Holo/Or has finished acceptance of critical production equipment at our new cleanroom, and production is ramping up at the new facility. Once finished , Holo/Or will more than double our production capabilities, enabling better lead times for large orders from our customers in all laser application fields.

We would like to thank all the installation and integration engineers of our vendors, who traveled to our site to support the comissioning and training on the new equipment. We appreciate your support and dedication!

Publications and conferences

Upcoming - Laser world of photonics China

LASER World of PHOTONICS CHINA

20-22 March 2024 Shanghai, China

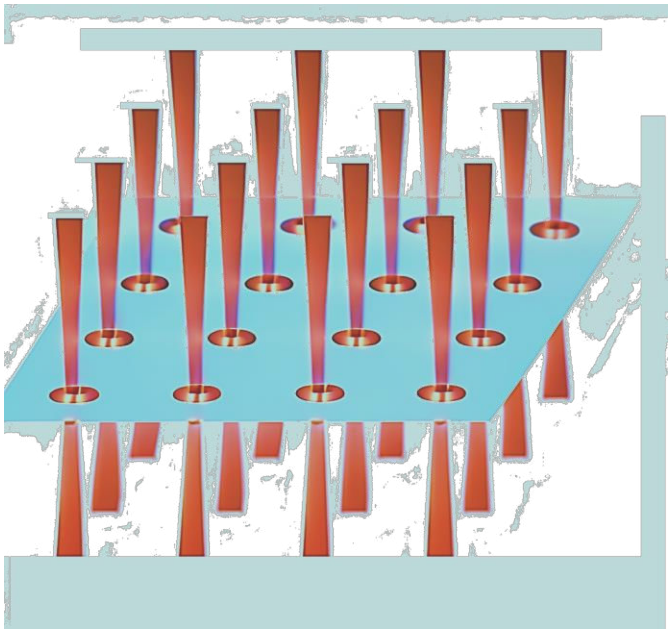
We are excited to be finally going back to china, after more than 3 years of being forced not to participate in LWOP china. Come meet our experienced application engineers at **Hall W4, Booth # 4317** and bring us your beam shaping challenges! To set up a consultation meeting at our booth, feel free to contact us with your preferred time slot.

2D Beam splitters used for stable optical autofocusing in microscopy

Autofocusing is a common challenge in microscopy systems to enable fast work over large fields. In a recent Optics Express article, researchers have used Holo/Or a multi-spot 2d beam splitter DOE to generate an array of dots for autofocus over a large microscope fields, eliminating the single-point failure risk inherent in standard autofocus methods. Interested in generating application- tailored 2D spot arrays for advanced microscopy applications? feel free to contact Holo/Or.

Products and Applications

Eliminate uncertainty- Holo/Or DOEs are the right choice for laser-based quantum technologies



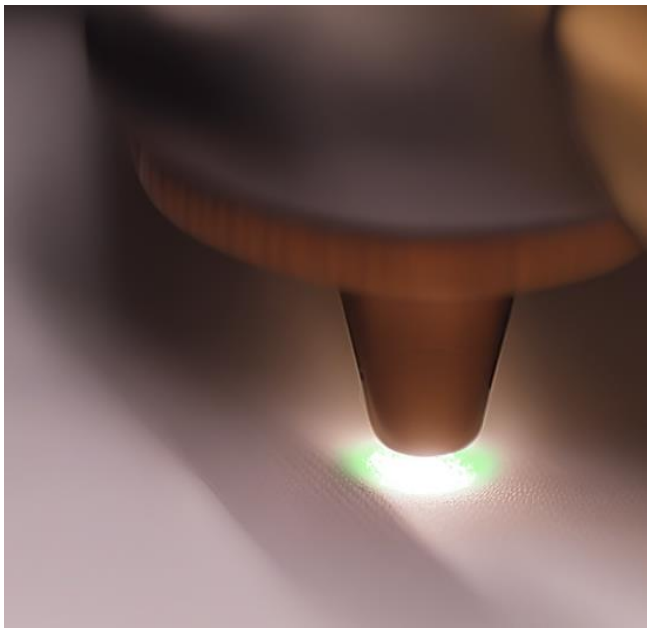
Laser based Quantum technologies are emerging as a field where major investments have been made and continue to be made, with a strong growth in companies developing Quantum communications, computing and other technologies.

These technologies face many challenges in commercialization, with one of the major challenges the scaling of quantum systems to useful scales. Diffractive optical elements are a key technology in the scale up optics-based quantum computing and communications systems. Applications include generating arrays of optical traps using our multispot beam splitter elements, use of top hat illumination to generate 2D light traps, and mode conversion of lasers using spiral phase plates to transmit quantum information.

Contact us for support with your quantum optics applications.

Fueling the future- laser drilling of high-temperature hydrogen electrolysers using diffractive optics

Hydrogen technologies are essential for a future economy utilizing renewable energy and less dependent on fossil fuels. A key component in cost-effective large scale clean hydrogen production are high temperature electrolysers. These are the component that convert water to clean hydrogen using a combination of thermal energy and electrical voltage applied between two electrodes. For efficient conversion, porous electrodes must be used, which can be achieved by drilling micro holes into the electrode material. Laser drilling is coming to the fore a viable method for such a process, but rates must be scaled up to enable cost-effective production.
Holo/Or beam splitters can be used in combination with standard scanning optics to increase drilling rates by enabling simultaneous drilling of hundreds of holes.



Technical Tips

Common issues when integrating beam shapers

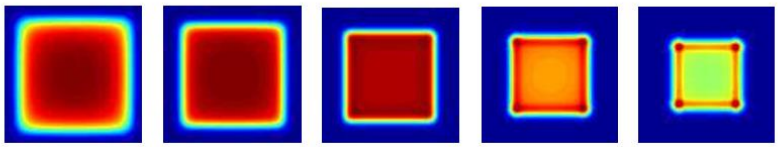
With the increasing popularity of our top hat beam shaper elements, we at Holol/Or often encounter questions from new users of our beam shapers that are integrating them into their optical setup for the first time.

These issues are typically either an inability to see the correct shape at focus, or issues of intensity uniformity within the shape.

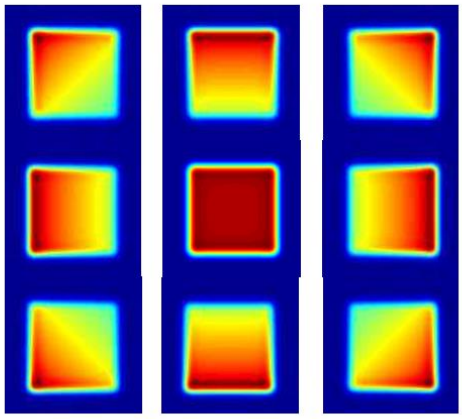
As a general advice, the following steps should be implemented in such cases:

- Read the Top Hat installation manual you received with the parts, and follow the procedure.
- Check that all optics are laser grade, and achieve diffraction-limited performance (often beam shapers require beam expanders to adjust the input beam size, these must be checked first as to their performance)
- Check that all Apertures in the system are at least X2 times the size of the laser beam going into the beam shaper DOE , and there is no clipping of the beam by apertures.
- Make sure the top hat shaper is installed on a suitable mount to allow for accurate x-y shifts vs the input beam, with steps of 1% beam diameter or less. Tilt is less sensitive so typically there is no need for tip-tilt mounts.

Defocus effect for square Top-Hat shape.



Misalignment effect for square Top-Hat shape.



- If you can still not get the desired result, **contact Holo/Or for support.** Please enclose PN & Sn of the parts, as well as a description and images of your optical setup.