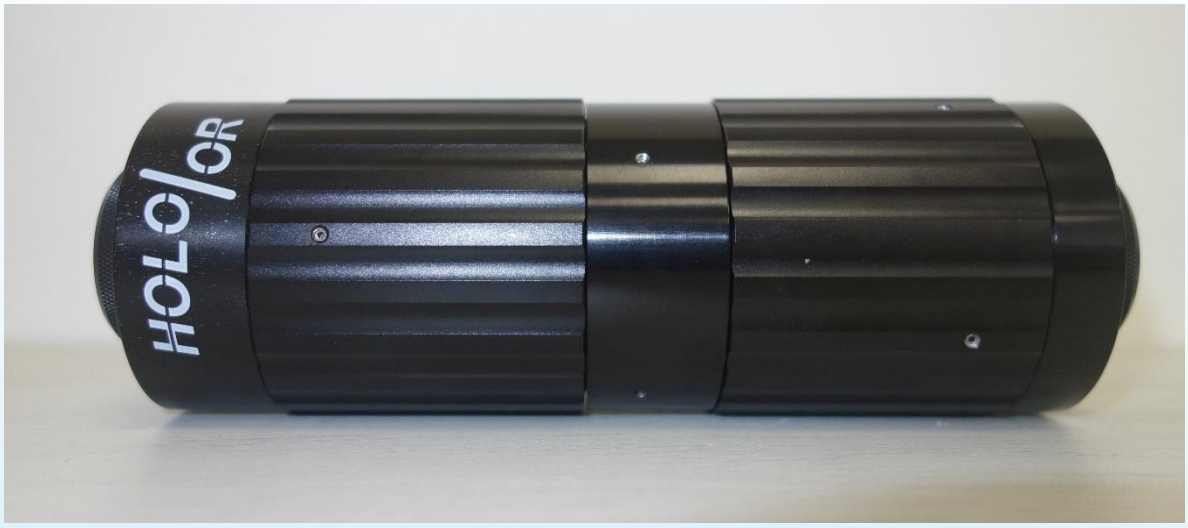
HOLO/OR The Early Pioneer of Diffractive Optics



USER MANUAL

DOE TUNER

Magnitude 0.8-1.2

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1. Safety & Handling

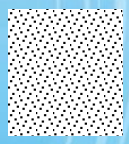
General recommendations for working with a laser:
http://web.princeton.edu/sites/ehs/laserguide/appendixB.htm

- Don't place beam at eye level.
- When leaning over a table, beware of beam directed upwards.
- Don’t direct beam toward doors or windows.
- Locate controls so that the operator is not exposed to beam hazards.
- If you can see the beam through your laser eyewear, you are not fully protected.
- Don’t wear watches or reflective jewelry around Class 3B or 4 lasers.
- Don’t wear neckties around Class 4 open beam lasers.

Alignment

- Isolate process.
- Use lowest practical power.
- Use IR/UV viewing cards/eyewear.

Handling:

Use gloves	Mechanical damage	Chemical	Dust
			

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2. Introduction

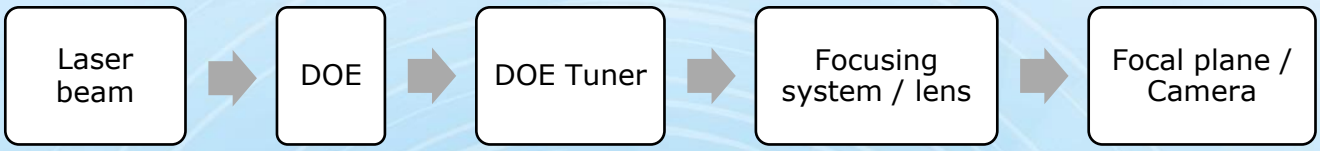
To answer the demand for fine-tuning abilities of various output parameters when using a DOE, such as: shape/spot size, separation/divergence angle, etc., HOLO/OR designed a variable beam tuner, optimized for use with Top-Hat beam shaper, Homogenizer, MultiSpot, and other DOE products. Another application is the fine-tuning of incident beam size before DOE for Top-Hat application, where precision of incident beam size is important.

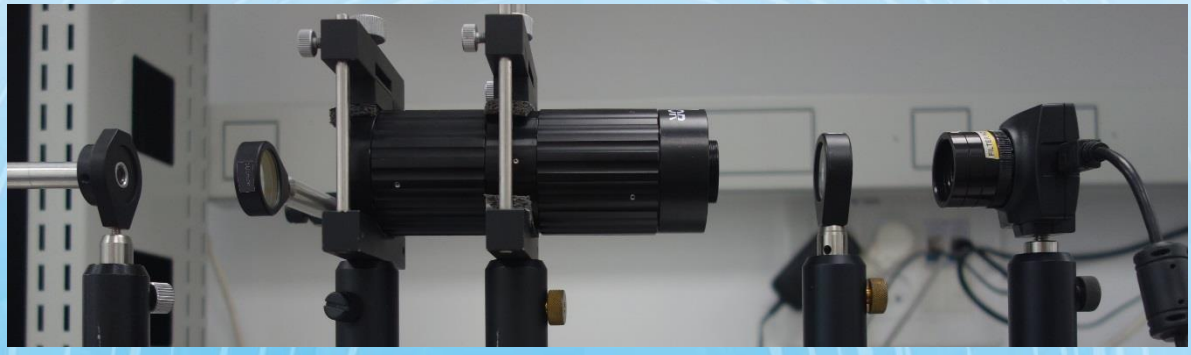
More information can be found at the DOE Tuner product page:

http://holoor.co.il/Diffractive_optics_Solutions/DOE_Tuner.php

A typical setup for a DOE Tuner application is shown with the following sub-modules:

a) Laser source
b) Diffractive Optical Element (DOE)*
c) DOE Tuner
d) Focusing system / lens
e) Focal plane / Camera





*DOE may be placed after the DOE tuner, depending on the user's application. See DOE Tuner product page for more information.

3. Technical information

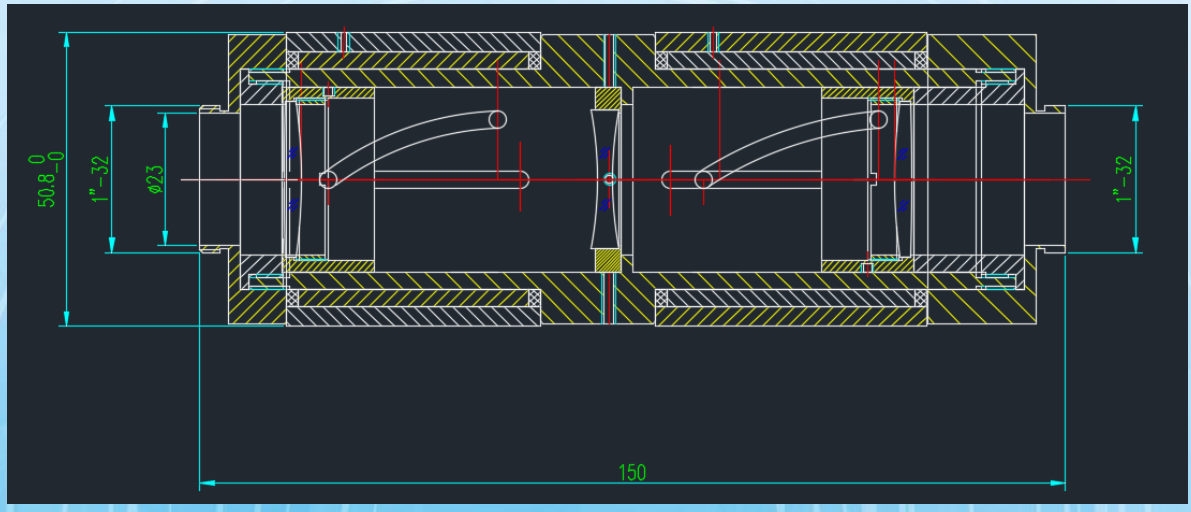
The DOE tuner presents the following features:

- Very low wave front error
- Beam expander x0.8-x1.2
- No need to change module direction
- Sliding lenses
- Constant mechanical size
- Fused Silica lens material
- Input and output clear aperture = 23 [mm]
- Module length = 120 [mm]
- Max. Input Beam Diameter (1/e2): Ø8.4 mm (0.8X), Ø7.0 mm (1.2X)
- Max. output beam size = 8.4 [mm]
- *Max. incident angle = 0.5º
- Wavelength range = 266-1064 [nm]
- Other wavelengths upon request

*Defines angular limitation for Top Hat Beam Shaper or Beam Splitter usage.

Physical parameters: 150 mm length 50.8 mm diameter

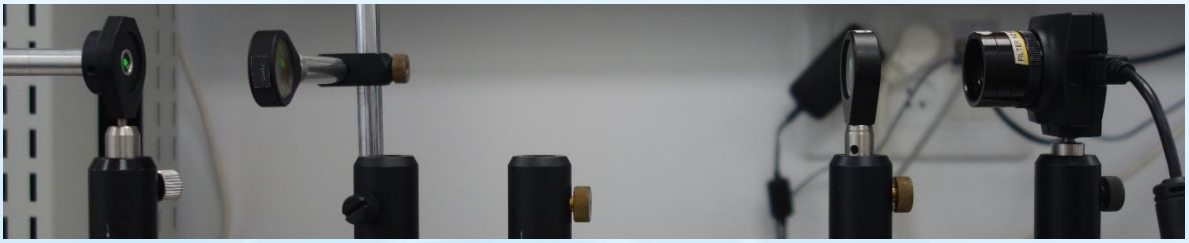
Drawing:



4. Installing the DOE Tuner

Installation instructions:

1. Align the laser beam to the optical axis
2. Place focusing lens while keeping free space for placing of DOE and DOE Tuner
3. Place camera at the focal plane of the focusing lens
4. Place the DOE after the laser OR just before the focusing lens (depending on if your application requires the DOE to be before or after the DOE Tuner). See DOE Tuner product page (link above in "Introduction") if you are unsure of the proper placement.
5. Find camera position/working distance with optimal DOE performance.



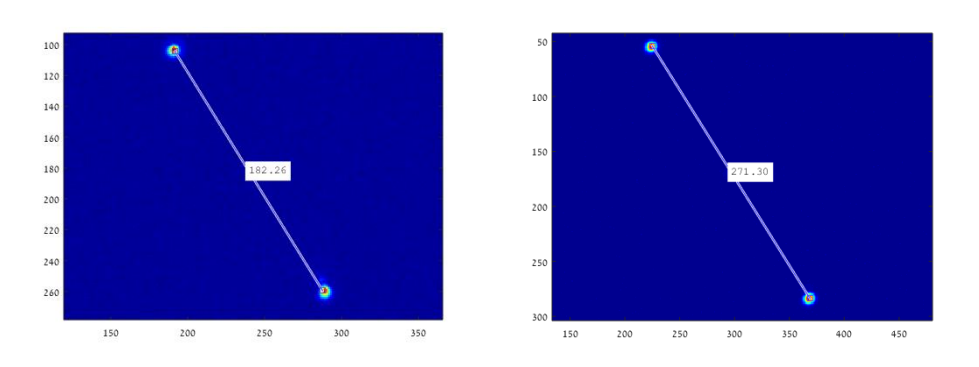
6. Place DOE Tuner on optical axis between DOE and focus lens OR between laser and DOE (see step 4). Make sure the output of the DOE Tuner is exiting the side with the Holo/Or logo.
7. Rotate both adjustment rings clockwise until they stop. In this position, magnification is minimized (0.8x). The image may not be in focus.

5. Using the DOE Tuner

After the DOE Tuner is installed in the system:

1. Begin rotating one of the rings counterclockwise for some amount.
2. Rotate the second ring in the same direction until the image is focused. If focus is not achieved easily, then adjust the first ring again, as well.
3. Continue this process—rotating one ring and then the other—until desired output is achieved.

Real pictures taken using DOE Tuner



Two spots with separation with magnitude 0.8 left, and two spots with magnitude 1.2 right

Thank you

We would like to congratulate you on your purchase of a quality product from HOLO/OR and thank you for putting your trust in us.

If you need any further advice, please contact customer service.

HOLO/OR

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